SONY®

VIDEO CASSETTE RECORDER

SVO-9500MDP

SERVICE MANUAL

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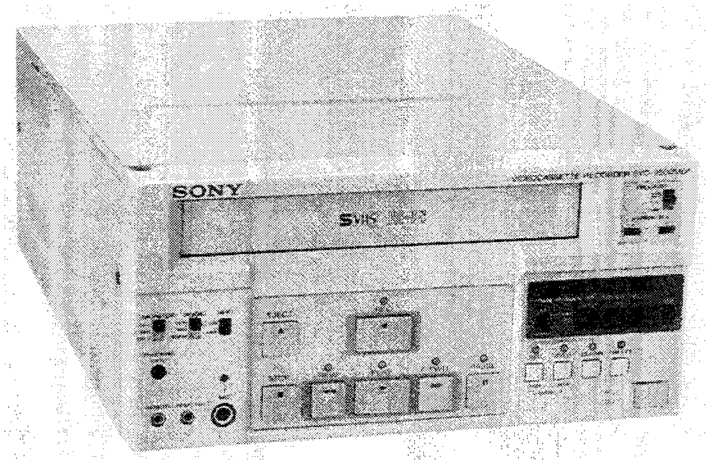

SVHS
625

SPECIFICATIONS

System

Signal system	PAL color, CCIR standards
Recording system	Rotary 2-head azimuth recording, VHS format
Luminance	FM recording
Color	Converted subcarrier phase shift recording

Video

Inputs	VIDEO IN (BNC type) × 2 for a bridging connection 1.0 Vp-p $^{+1}_{-0.5}$ Vp-p, 75 ohms, unbalanced, sync negative S VIDEO IN (4-pin mini DIN) × 2 for a bridging connection Luminance: 1.0 Vp-p, 75 ohms, unbalanced Color: 0.3 Vp-p, 75 ohms, unbalanced
Outputs	VIDEO OUT (BNC type) × 1 1.0 Vp-p ±0.2 Vp-p, 75 ohms, unbalanced, sync negative S VIDEO OUT (4-pin mini DIN) × 1 Luminance: 1.0 Vp-p, 75 ohms, unbalanced Color: 0.3 Vp-p, 75 ohms, unbalanced
Horizontal resolution	More than 240 TV lines (VHS) More than 400 TV lines (S-VHS)
S/N	45 dB (VHS)
Recording level control	Automatic

Audio

Tracks	4 tracks (hi-fi: 2, normal: 2)
Inputs	AUDIO IN CH-1/L, CH-2/R (phono jack) × 1 each –10 dBs (0 dBs = 0.775 V), 47 kilohms, unbalanced MIC (phone jack) × 1 –60 dBs (0 dBs = 0.775 V), 3 kilohms, unbalanced
Outputs	AUDIO OUT CH-1/L, CH-2/R (phono jack) × 1 each –10 dBs (0 dBs = 0.775 V) (47-kilohm load), unbalanced MONITOR OUT (phono jack) × 1 –5 dBs (0 dBs = 0.775 V) (47-kilohm load), unbalanced
S/N	More than 43 dB (with normal audio at 3% distortion)
Frequency response	50 to 12,000 Hz (with normal audio) 20 to 20,000 Hz (with hi-fi audio)
Dynamic range	More than 90 dB (with hi-fi audio)
Recording level control	Limiter system

Other functions

Search	Possible (still, 5 times normal speed in both forward and reverse directions) With SVRM-100: still or picture search with $^{1}/_{10}$ to 10 times normal speed in both forward and reverse directions

Tape transport

Tape speed	23.39 mm/sec.
Recording and playback time	Approx. 180 minutes (with E-180)
Fast forward and rewind time	Within 2.5 minutes (with E-180)
Usable tape	Standard VHS tapes

General

Power requirements	220/240 V AC ±10%, selectable 50/60 Hz ±10%, 220 V: 0.33 A 240 V: 0.3 A
Power consumption	72 VA
Operating position	Horizontal
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	270 × 132 × 366 mm (w/h/d) ($10\,^{3}/_{4} \times 5\,^{1}/_{4} \times 14\,^{1}/_{2}$ inches) not including projecting parts and controls
Weight	Approx. 10 kg (22 lb 1 oz)
Supplied accessory	Operating instructions (1)

Design and specifications are subject to change without notice.

Optional accessories

SVRM-100 Remote control unit (for the front REMOTE connector)
SVAC-100 indicator unit
SVBK-100 33-pin interface board
SVBK-110 34-pin interface board
SVBK-120 RS-232C interface board
RM-81/RM-91 Remote control unit (for the front REMOTE 2 connector)

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SECTION 1
GENERAL DISCRIPTION

1-1. FEATURES

High reliability

Two direct reel motors are employed. A material of high hardness is used for the lower drum to prolong service life. In addition, the beltless mechanism gives high reliability.

Built-in chroma noise reducer

The digital chroma noise reducer yields life-like color reproduction. The recorder also has jitter elimination functions for stable pictures on playback.

Hi-fi audio recording

Frequency-modulated hi-fi audio can be recorded on the video track of a tape while simultaneously recording normal audio on the audio tracks. In playback, either normal audio or hi-fi audio can be selected.

Four-channel audio

Recording and playback of two channels each of normal audio and hi-fi audio, four channels in total, are possible.

Instantaneous recording from long-pause mode

Recording can be instantly resumed even when the recorder is in long-pause mode, so a chance to start recording will not be missed.

Automatic control of video recording level

The automatic gain control (AGC) circuit maintains the proper video level assuring optimum video recording.

Programmed operation

Programmed operation allows you to locate specified points on a tape in search mode and also to automatically repeat a desired portion.

Loop-through output

A video input signal connected to one of the VIDEO IN connectors is directly output from the other VIDEO IN connector. Pictures are displayed on a monitor connected to it, therefore, with good resolution even in modes other than playback, and you can record pictures while viewing them on the monitor.

LED time counter

The time counter reads out the CTL signals recorded on a tape and indicates the tape running time in hours, minutes and seconds. This is useful for checking recording time as well.

Search function

Search in the forward and reverse directions can be performed at 5 times normal speed. When the search dial of an SVRM-100 remote control unit (optional) is used, the picture can be viewed on playback at various speeds from $^1/_{10}$ times to 10 times normal speed as well as in still mode.

Index search

When the SVRM-100 remote control unit (optional) is used, desired points on a tape can be easily located by marking an index signal at these points in advance.

Blank search

The blank search function automatically finds an unrecorded portion on a tape. It may be helpful in locating the starting point of recording.

Frame memory and freeze functions

Pictures can be stored frame by frame in memory, using the frame memory function, and a noiseless still picture can be obtained with the freeze function. For a still picture, either a frame or a field picture can be selected with the touch of a button.

Menu operation function

The menu operation function permits various operational requirements for the recorder to be easily designated, using the buttons on the front panel.

Automatic tape eject at the end

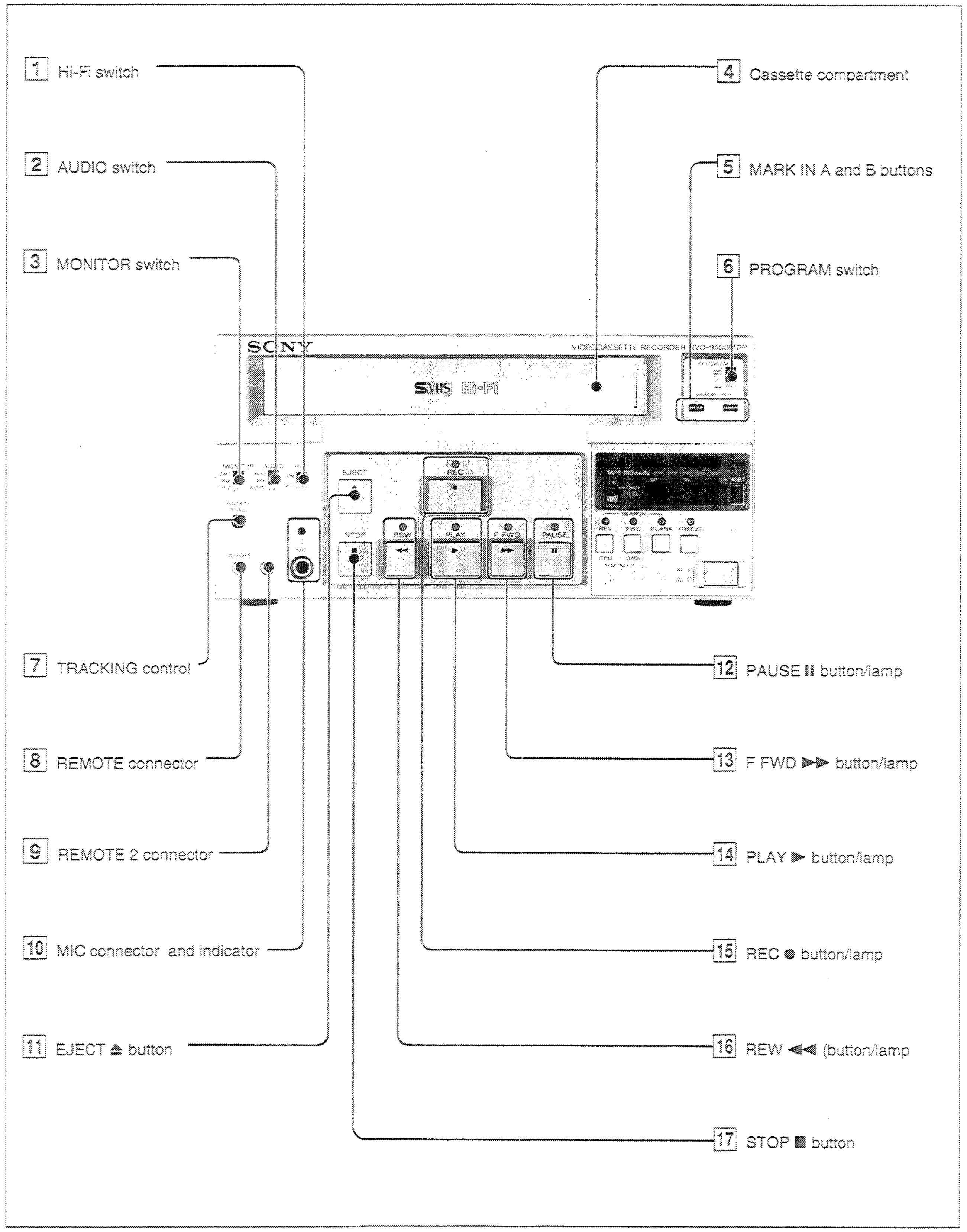
When recording reaches the end of a tape, the recorder automatically ejects the tape. This avoids inadvertent overrecording which erases valuable data. This automatic tape eject can be inhibited through a menu operation.

Tape remaining time indication

A rough estimate of the amount of recording on a tape is displayed.
The remaining time of a tape can also be checked on the SVAC-100 indicator unit (optional).

1-2. PARTS IDENTIFICATION

Front Panel


1 Hi-Fi switch
2 AUDIO switch
3 MONITOR switch
4 Cassette compartment
5 MARK IN A and B buttons
6 PROGRAM switch
7 TRACKING control
8 REMOTE connector
9 REMOTE 2 connector
10 MIC connector and indicator
11 EJECT ≜ button
12 PAUSE II button/lamp
13 F FWD ▶▶ button/lamp
14 PLAY ▶ button/lamp
15 REC ● button/lamp
16 REW ◀◀ (button/lamp
17 STOP ■ button
SONY
S-VHS Hi-Fi
EJECT
REC
STOP
REW
PLAY
F FWD
PAUSE

1 Hi-Fi switch

Determines whether to record hi-fi audio.

- Normal audio is constantly recorded regardless of this switch setting.

ON	Record hi-fi audio.
OFF	Do not record hi-fi audio.

2 AUDIO switch

Selects the signal to be output from the AUDIO OUT CH-1/L and CH-2/R connectors on the rear panel.

Connector	AUDIO OUT CH-1/L	AUDIO OUT CH-2/R
Hi-Fi	Hi-fi audio channel 1	Hi-fi audio channel 2
MIX	Both hi-fi audio channels 1and 2	Both normal audio channels 1and 2
NORM	Normal audio channel 1	Normal audio channel 2

3 MONITOR switch

Selects the audio signal to be output from the MONITOR OUT connector on the rear panel. This switch is enabled for the signals selected with the AUDIO switch 2.

CH-1	Channel-1 audio
MIX	Both channel-1 and -2 audio
CH-2	Channel-2 audio

- For details, see "To Monitor the Sound Being Recorded" (page 15).

4 Cassette compartment

5 MARK IN A and B buttons

Press to memorize the time counter value at that time. You can memorize only one point on each button. If the button is pressed several times, only the last point will be memorized.

6 PROGRAM switch

B ⟲ A	For repeatedly playing a particular portion or checking the points memorized on the MARK IN A and B buttons.
OFF	For normal operation without using any programmed operation. (When the unit is to be controlled from a remote control unit connected to the REMOTE connector, be sure to set the switch to OFF.) Or for memorizing points on the MARK IN A and B buttons for programmed operation.
A →|←	For locating a point memorized on the MARK IN A button. Or for memorizing points on the MARK IN A and B buttons for programmed operation. If no point has been memorized, the tape stops at the point indicated by "0:00:00" on the time counter.

7 TRACKING control

Normally set the control at the center FIXED position. Should noise, snow or streaks appear in a playback picture recorded on another machine, turn this control so that the best possible picture is obtained.
When the recorder is in slow mode, slow-tracking control can be performed. If noise, snow or streaks appear in pause mode, or in step-slow playback using an external controller connected via an interface board (optional), or the SVRM-100 remote control unit (optional) turn this control for the optimum picture.
When resuming normal playback, return this control to the original position.

- Do not move the control from the center FIXED position while recording.

8 REMOTE connector (stereo mini jack)

Accepts an optional SVRM-100 remote control unit. Recording, playback, fast forward, rewind, search (with 5-times normal speed) using the search dial and index operations can be remotely controlled.

9 REMOTE 2 connector (stereo mini jack)

Accepts an optional RM-81 or RM-91 remote control unit. Recording start/stop operations can be remotely controlled.

10 MIC (microphone) connector (phone jack) and indicator

Connect a microphone to record an external audio, which will be recorded on normal audio channel 1. During recording from the microphone, the indicator above the MIC connector blinks according to the sound level.

11 EJECT ⏏ button

Press to eject a video cassette.

12 PAUSE ❚❚ button/lamp

Press to stop the tape momentarily.

13 F FWD ▶▶ (fast forward) button/lamp

Press to advance the tape rapidly.

14 PLAY ▶ (playback) button/lamp

Press to play the tape back. Pressing this button while pressing the REC ● button 15 sets the unit in record mode.

15 REC ● (recording) button/lamp

For recording, press the PLAY ▶ button 14 while pressing this button.

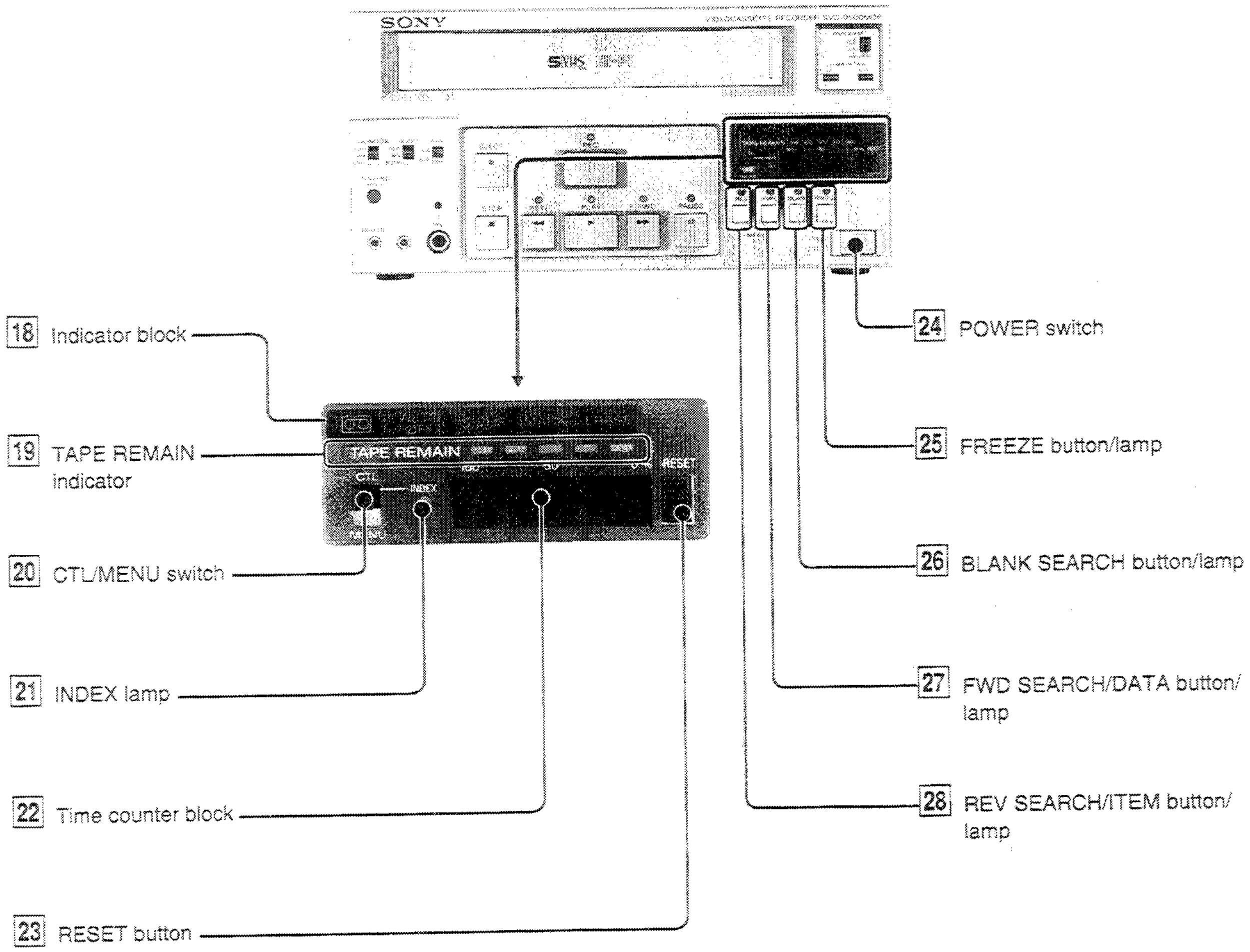
16 REW ◀◀ (rewind) button/lamp

Press to rewind the tape.

17 STOP ■ button

Press to stop the operation of the unit.

Front Panel (continued)


SONY
S-VHS
TAPE REMAIN
CTL
INDEX
MENU
RESET
18 Indicator block
19 TAPE REMAIN indicator
20 CTL/MENU switch
21 INDEX lamp
22 Time counter block
23 RESET button
24 POWER switch
25 FREEZE button/lamp
26 BLANK SEARCH button/lamp
27 FWD SEARCH/DATA button/ lamp
28 REV SEARCH/ITEM button/ lamp

18 Indicator block

📼	Lights when a cassette is set in the unit.
AUTO OFF	Lights when the power is applied and there is moisture inside the unit. While this indicator is lit, no cassette can be loaded in the unit.
S-VHS	Lights when recording or playing in S-VHS.
MARK	Blinks when marking an index signal using the SVRM-100 remote control unit.
ERASE	Blinks when erasing an index signal using the SVRM-100 remote control unit.

19 TAPE REMAIN indicator

Shows the amount of recording on a tape in percent.
While measuring the tape remain, the indicator alternately shows the following two indications.

A : TAPE REMAIN ■ ☐ ■ ☐ ■
↕
B : TAPE REMAIN ☐ ■ ☐ ■ ☐

Note

The remaining tape cannot be correctly indicated, depending on the length of the tape being used.

[20] CTL/MENU switch

Selects data to be displayed on the time counter block [22].

CTL	To count CTL signals on the tape and display the tape transport time in hours, minutes and seconds.
MENU	To go to menu mode and display the items and the respective settings. Other operations cannot be performed in menu mode.

[21] INDEX lamp

Lights during index scan and index search operations.

[22] Time counter block

Displays data selected with the CTL/MENU switch [20].

[23] RESET button

With the CTL/MENU switch [20] set to CTL and the tape transport time of the tape displayed on the time counter block [22], the indication will be set to "0:00:00" when this button is pressed.

[24] POWER switch

[25] FREEZE button/lamp

Press to display a freeze picture on the monitor screen. Each time the button is pressed, frame-freeze picture, first-field freeze picture and second-field freeze picture are selected in the sequence.

[26] BLANK SEARCH button/lamp

Press to search for a unrecorded portion on a tape.

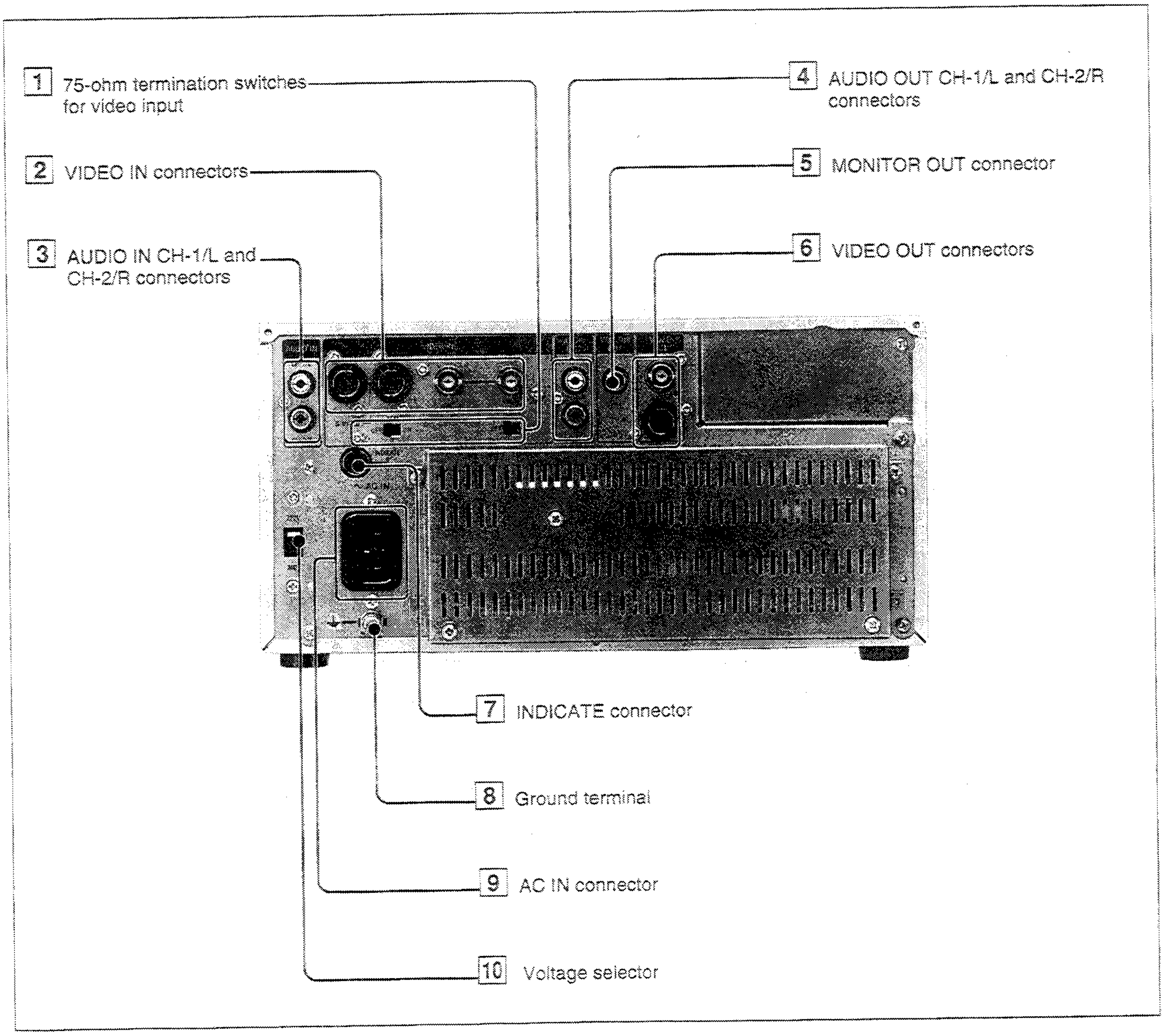
[27] FWD (forward) SEARCH/DATA button/lamp

Press for a search operation in the forward direction.
In menu operations (with the CTL/MENU switch [20] set to MENU), press this button to select the datum to be set for the selected item.

[28] REV (reverse) SEARCH/ITEM button/lamp

Press for a search operation in the reverse direction.
In menu operations (with the CTL/MENU switch [20] set to MENU), press this button to select the item to be set.

Rear Panel



1 75-ohm termination switches for video input
2 VIDEO IN connectors
3 AUDIO IN CH-1/L and CH-2/R connectors
4 AUDIO OUT CH-1/L and CH-2/R connectors
5 MONITOR OUT connector
6 VIDEO OUT connectors
7 INDICATE connector
8 Ground terminal
9 AC IN connector
10 Voltage selector

1 75-ohm termination switches for video input

Use to terminate the video signal supplied to the VIDEO IN connectors. The left switch is for the S connectors and the right switch is for the BNC-type connectors.

ON	When no bridge connection is required. Or, when the unit is used as the last unit of a bridge connection.
OFF	For a bridge connection (using one of the VIDEO IN connectors for loop-through output).

2 VIDEO IN (input) connectors (S type/BNC type)

The left two connectors are S connectors and the right two connectors are BNC connectors for composite signals.
Bridge connection is also allowed. **For the bridge connection, set the respective 75-ohm termination switches 1 for the video input of the units other than the last unit of the connection to OFF.**

3 AUDIO IN (input) CH-1/L (channel 1/left) and CH-2/R (channel 2/right) connectors (phono jacks)

4 AUDIO OUT (output) CH-1/L (channel 1/left) and CH-2/R (channel 2/right) connectors (phono jacks)

The audio signal selected at the AUDIO switch on the front panel is supplied here.

5 MONITOR OUT (audio monitor output) connector (phono jack)

The audio signal selected at the MONITOR switch on the front panel is supplied here.

6 VIDEO OUT (output) connectors (BNC type/S type)

The upper connector is a BNC-type connector for normal composite signals and the lower connector is an S connector.

7 INDICATE connector (8-pin)

Accepts the SVAC-100 indicator unit (optional).

8 Ground terminal

When the recorder cabinet is to be grounded, connect a ground wire here.

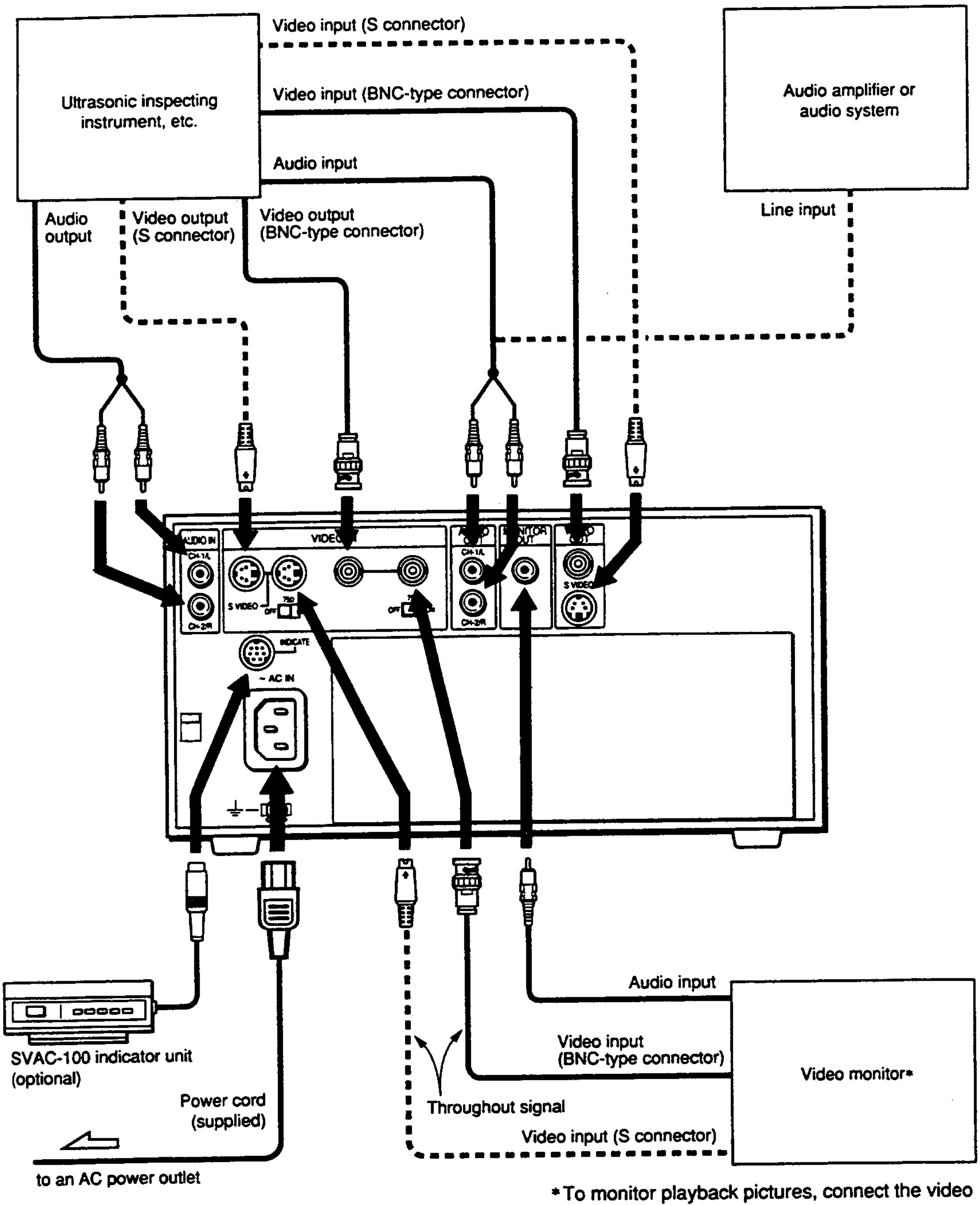
9 AC IN (input) connector

Connect to an AC power outlet using the supplied power cord.

10 Voltage selector

Use to select the operating voltage of the SVO-9500MDP, 220 V or 240 V, according to your local power supply.

1-3. CONNECTIONS


Ultrasonic inspecting instrument, etc.
Video input (S connector)
Video input (BNC-type connector)
Audio input
Audio output
Video output (S connector)
Video output (BNC-type connector)
Audio amplifier or audio system
Line input
SVAC-100 indicator unit (optional)
Power cord (supplied)
to an AC power outlet
Throughout signal
Audio input
Video input (BNC-type connector)
Video input (S connector)
Video monitor*

*To monitor playback pictures, connect the video monitor to the VIDEO OUT connector.

Notes

- When a microphone is connected in normal recording, the signal connected to the AUDIO IN CH-1/L connector on the rear is automatically switched to the signal from the microphone. In hi-fi recording, the signal from the AUDIO IN CH-1/L connector is recorded.
- Set the 75-ohm termination switches according to the description on the previous page 6.

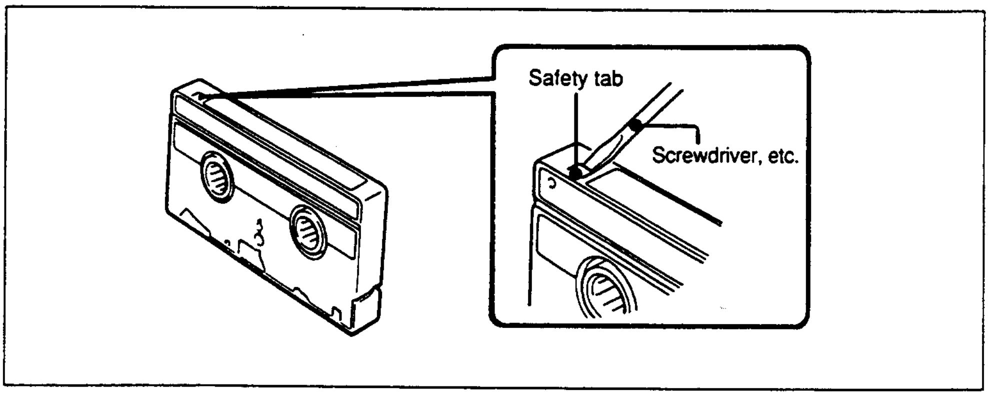
Notes on Cassettes

Notes on cassette insertion

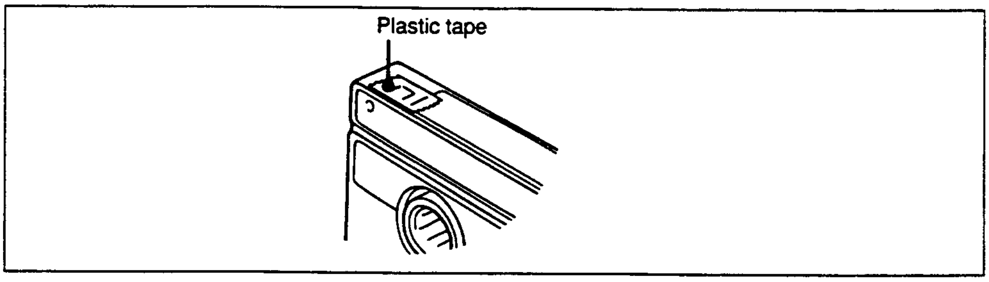
- Be sure to insert the cassette straight into the entrance of the compartment.
- Check the cassette sides and be sure to insert the cassette correctly **with the label side up**.
- The labels on the cassette should be firmly attached. If they peel off an inserted cassette, you might not be able to remove the cassette.

About the safety tab

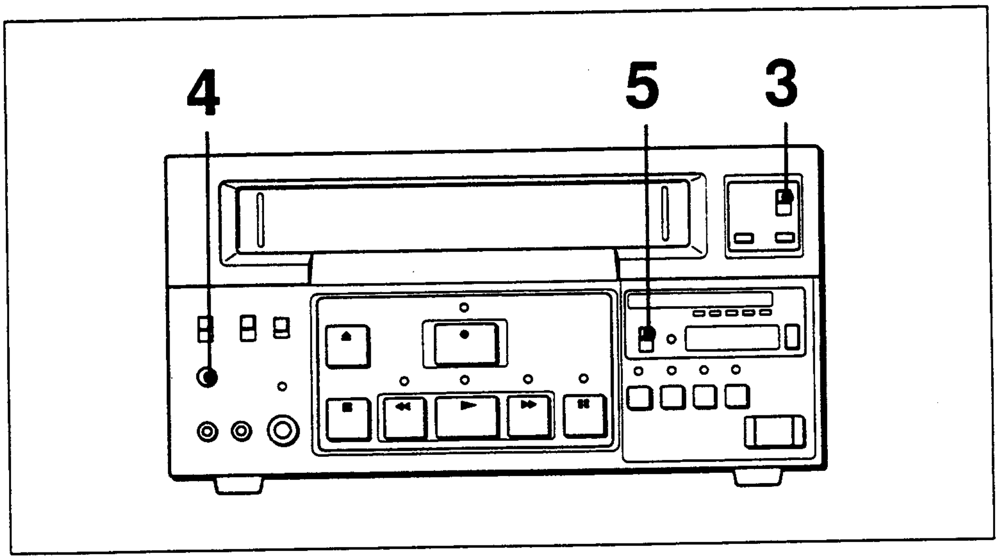
When re-recording on a recorded tape, the pre-recorded material will be automatically erased. To avoid unintentional erasure of previously recorded video sources, break off the safety tab on the cassette. With the tab removed, recording mode cannot be activated.



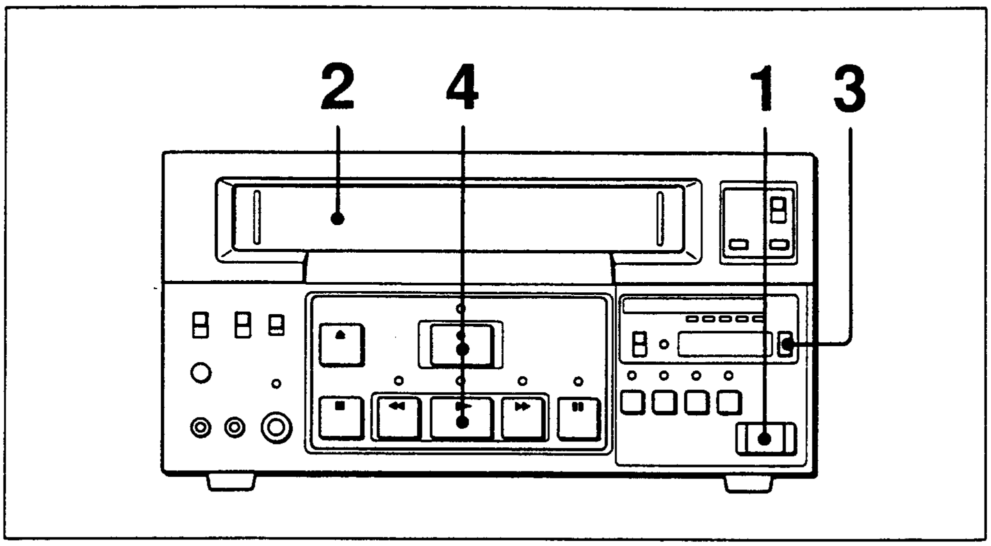
To re-record on the cassette
Cover the slot where the safety tab used to be located with plastic tape.



Preparations



1. Perform the necessary connections.
2. Turn on the power of the video monitor.
3. Set the PROGRAM switch on the recorder to OFF.
4. Set the TRACKING control to FIXED.
5. Set the CTL/MENU switch to CTL.



1 Press the POWER switch to turn on the power of the recorder.

2 Insert a cassette.

3 Press the RESET button.
The time counter shows "0:00:00."

4 Press the PLAY ▶ button while pressing the REC ● button.
Recording begins.

Regarding a cassette
Be sure to check the tab on the bottom of the cassette is in place before inserting it in the recorder. **Recording mode cannot be activated with a cassette without the tab.**

Audio recording

When an audio signal is connected to the AUDIO IN CH-1/L and CH-2/R connectors on the rear panel, it is recorded along with video. Set the Hi-Fi switch on the front panel to determine whether to record normal audio only or to record hi-fi audio as well.

Audio to be recorded	Hi-Fi switch setting
To record normal audio only	OFF
To record both normal audio and hi-fi audio	ON

Recording with a microphone
By connecting a microphone to the MIC connector on the front panel, necessary information can be recorded as voice memos. The voice is recorded on the track of normal audio channel 1. The recording level is automatically adjusted to the optimum value. During recording with a microphone, the indicator above the MIC connector lights in response to voice input.

To stop the tape momentarily

Press the PAUSE ❚❚ button. To resume recording, press the PAUSE ❚❚ button again. (This operation can be controlled from a distance when a remote control unit or a foot switch has been connected.)

Long pause mode

If the pause mode continues for more than about 5 minutes, the tape around the head drum automatically slackens to protect the video head and the tape. This is called "long pause mode." To release the long pause mode, press the PAUSE ❚❚ button. Recording is immediately resumed.

When recording is finished

Press the STOP ■ button.

If the recording is done to the end of the tape

Recording stops and the cassette is automatically ejected.
This automatic eject can be inhibited through a menu operation. For details, see "Menu Operations" (page 30).

If the tape does not run by pressing any of the operation buttons

1. Press the EJECT ⏏ button to take out the cassette.
2. Turn the reel in the direction of the arrow on the bottom of the cassette until the leader tape is completely taken up.
3. Insert the cassette again.
   If the cassette cannot be ejected, or if the tape transport buttons are not effective after above operation, consult your nearest Sony service facility.

To Find the Starting Point of Recording—Blank Search

The beginning of the unrecorded portion on a tape on which several images have been already recorded can be easily located, so that you may continue recording from that point. Insert the cassette in the compartment and press the BLANK button. The recorder operates as follows.

1. Search mode in the forward direction is activated and the BLANK lamp lights.
2. When a blank portion cannot be located within about 10 seconds, fast forward mode is activated to continue searching for the blank portion.
3. When a blank portion is detected, search mode in the reverse direction is activated to locate the beginning of the blank portion.
4. When the beginning of the blank portion is located, slow search mode in the forward direction is activated and then the tape stops at the beginning of the blank portion in pause mode. The BLANK lamp lights.
   If the beginning of the blank portion cannot be located, the tape rewinds to the beginning and blank search mode is automatically released.

To cancel blank search mode
Blank search mode is automatically canceled when the search reaches the end of tape. To cancel the mode on the middle of a tape, press any of the tape transport buttons.

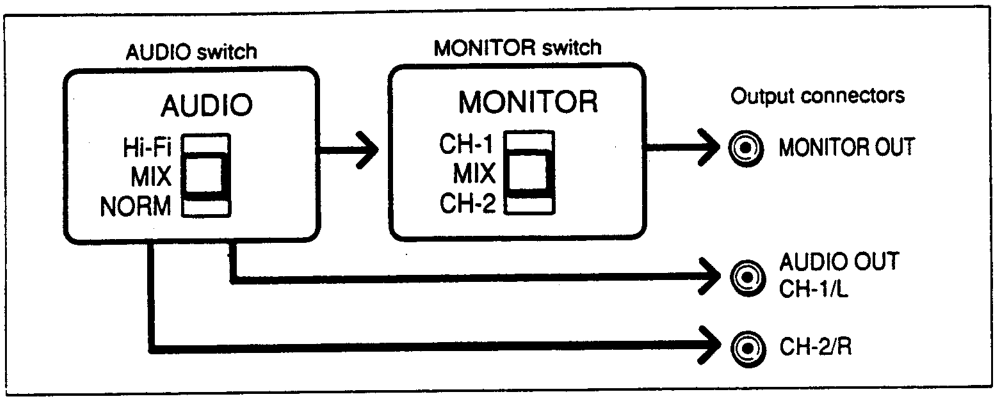
To View the Picture Being Recorded

While recording, the picture being recorded can be seen on a monitor screen. Connect a video monitor to one of the VIDEO IN connectors on the rear panel. The loop-through output function provides high-resolution pictures.

Automatic recording level adjustment
The built-in AGC circuit automatically adjusts the video recording level to the optimum value.

To Monitor the Sound Being Recorded

Select the sound to be monitored with the AUDIO switch and the MONITOR switch.


AUDIO switch
MONITOR switch
AUDIO
Hi-Fi
MIX
NORM
MONITOR
CH-1
MIX
CH-2
Output connectors
MONITOR OUT
AUDIO OUT
CH-1/L
CH-2/R

AUDIO switch settings

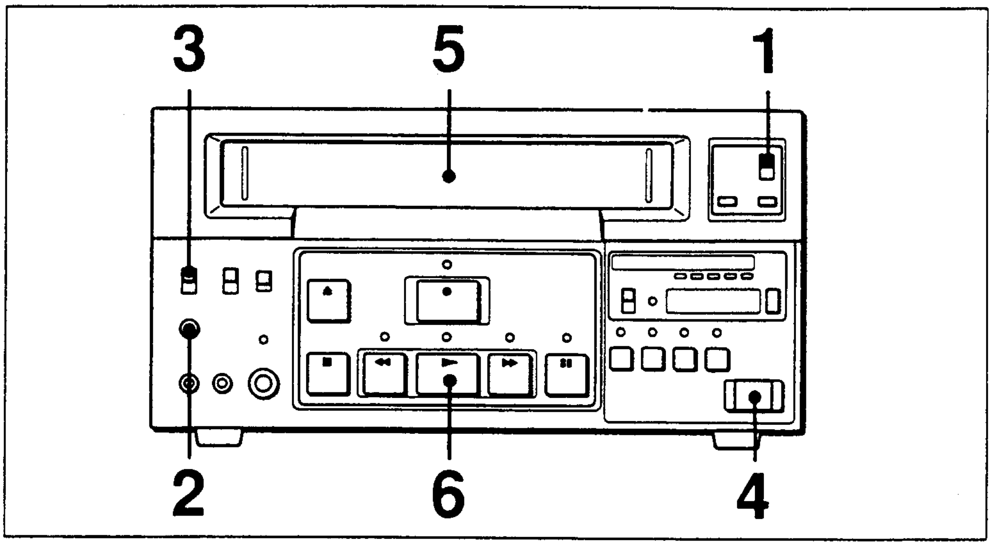
Sound to be monitored	**Switch settings**
To monitor hi-fi audio channel 1 and channel 2 individually	Hi-Fi
To monitor normal channel 1 and channel 2 individually	NORM
To monitor channels 1 and 2 simultaneously. (Hi-fi channels 1 and 2 are provided from the CH-1/L connector and normal audio channels 1 and 2 are provided from the CH-2/R connector.)	MIX

MONITOR switch settings

Channel to be monitored	**Switch setting**
Channel 1 only	CH-1
Both channels 1 and 2	MIX
Channel 2 only	CH-2

- The MONITOR switch has no effect on the audio output from the AUDIO OUT CH-1/L and CH-2/R connectors.

Operation



1 Set the PROGRAM switch of the recorder to OFF.

2 Set the TRACKING control to FIXED.

3 Set the MONITOR switch to:

MIX	for normal monitoring
CH-1	when monitoring only the sound of channel 1.
CH-2	when monitoring only the sound of channel 2.

- This switch has no effect on outputs to the AUDIO OUT CH-1/L and CH-2/R connectors.

4 Turn on the power.

5 Insert the cassette to be played back.

6 Press the PLAY ▶ button.
Playback begins.

To stop playback
Press the STOP ■ button.

To stop the tape momentarily
Press the PAUSE ❚❚ button. The tape stops and a still picture appears on the monitor screen.
To resume playback, press the PAUSE ❚❚ button again or the PLAY ▶ button.

- **If pause mode continues for about 5 minutes**, the recorder automatically enters long pause mode. The still freeze function permits a stable still picture to be seen even in long pause mode.
  Press the PAUSE ❚❚ button to release long pause mode.

When the tape is played back to the end
It automatically rewinds to the beginning and then stops.

If snow or streaks may appears on the picture
Slowly turn the TRACKING control clockwise or counterclockwise until the best possible picture is obtained.

- When the playback of this particular tape is finished, be sure to return the TRACKING control to the FIXED position.

To obtain a noiseless still picture

Press the FREEZE button during playback. You will get a clear still picture without noise on the screen.
One push of the FREEZE button shows a frame-freeze picture, the second push of the button shows a first-field picture and the next push shows a third-field picture. Thus, each time the button is pressed, these three freeze pictures are cyclically displayed.
The picture to be displayed at the first push of the FREEZE button can be selected from frame freeze picture and field-freeze picture, as desired. For details, see "Menu Operations" (page 30).

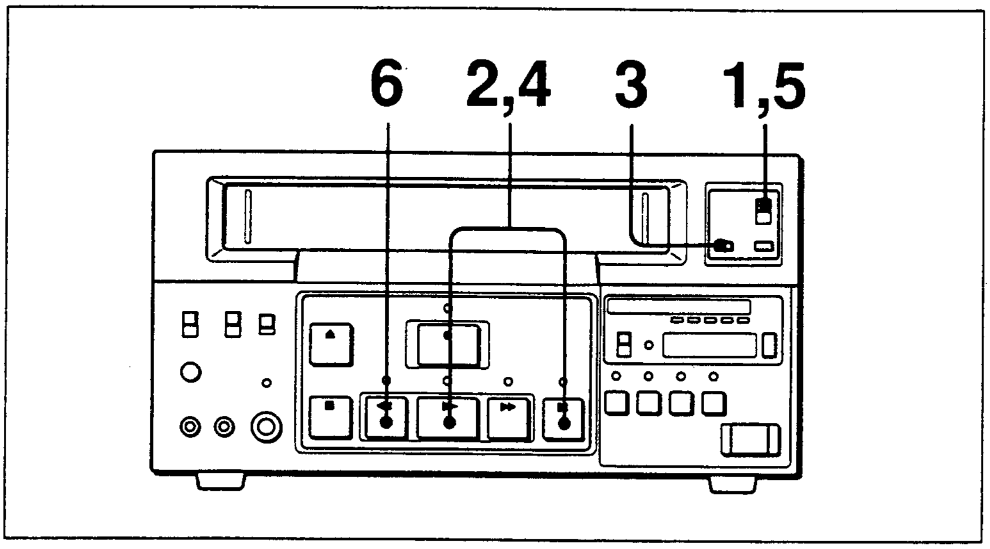
To cancel freeze mode
Hit any of the tape transport buttons other than the FREEZE button.

Freeze picture during search or pause
When the FREEZE button is pressed during search or pause, the tape runs in the reverse direction from that point for about 2 seconds and playback mode is activated. Playback continues to the point where the button was pressed and then the freeze picture for that point is displayed. In both cases, the tape stops at the point immediately after the freeze picture.

Programmed Operation

Using the MARK IN A and B buttons and the PROGRAM switch, you can quickly locate a desired point or repeatedly play a particular portion.

To quickly return to a desired point



1 Set the PROGRAM switch to OFF.

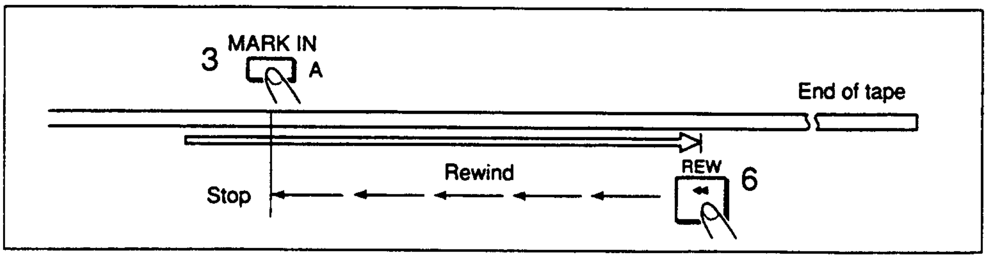
2 Play the tape and stop it at the desired point momentarily.

3 Press the MARK IN A button.
The desired point will be memorized.

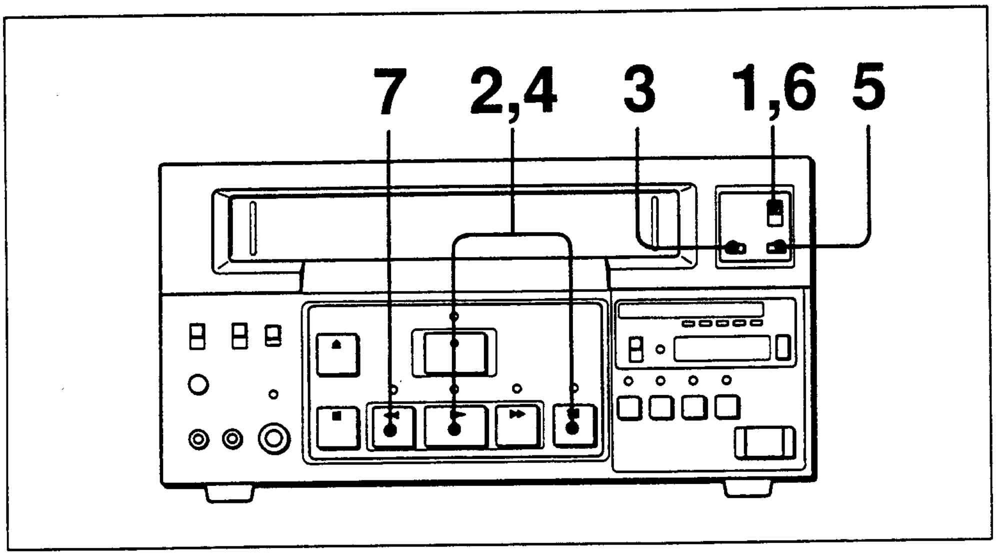
4 Press the PLAY ▶ button or the PAUSE ❚❚ button to resume the playback.

5 Set the PROGRAM button to $\rightarrow\overset{A}{|}\leftarrow$.

6 Press the REW ◀◀ button.
The tape will stop at the point memorized on the MARK IN A button.



To repeat a desired portion



1 Set the PROGRAM switch to OFF.

2 Play the tape and stop it momentarily at the point from which the playback is to be started.

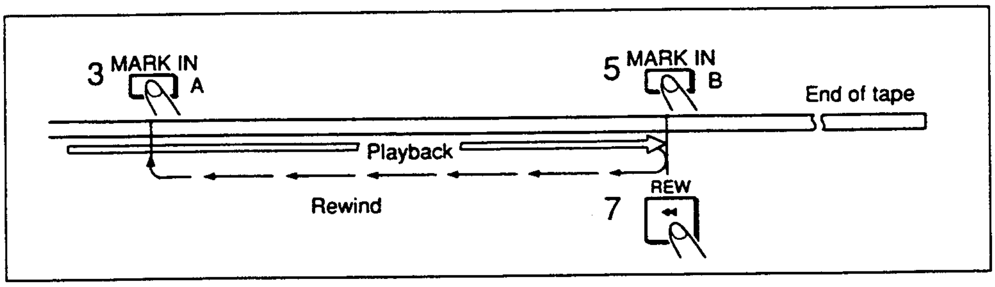
3 Press the MARK IN A button.

4 Search for a point where the playback is to be stopped and stop the tape momentarily at that point.

5 Press the MARK IN B button.

6 Set the PROGRAM switch to $_B\circlearrowleft^A$.

7 Press the REW ◀◀ button.
The portion between the points memorized on the MARK IN A and B buttons is repeatedly played back.


3 MARK IN A
5 MARK IN B
End of tape
Playback
Rewind
REW
7

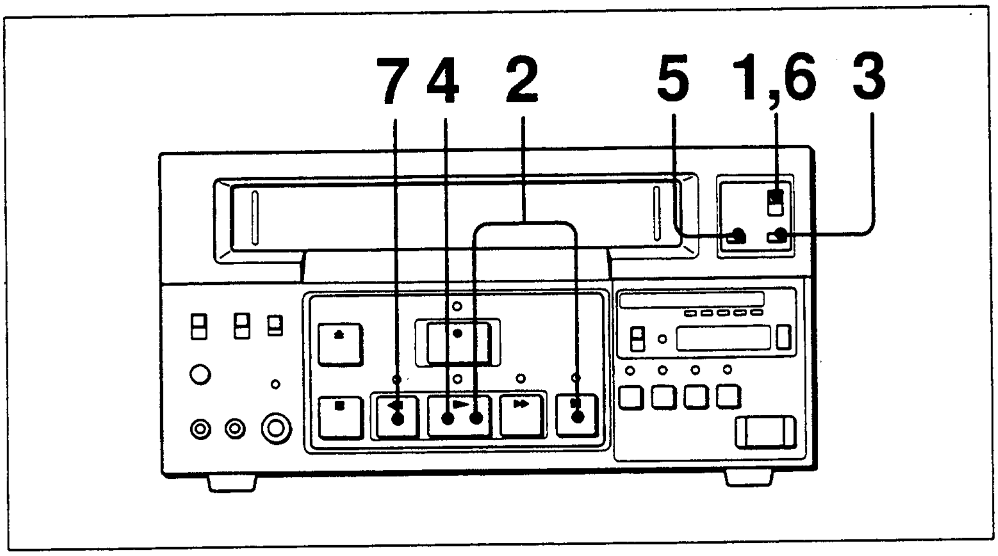
To check the memorized points

1. Press the STOP ■ button to stop the tape.
2. Set the PROGRAM switch to B↻A .
3. Press the MARK IN A or B button.
   The memory on that button will be displayed on the time counter while pressing the button.

To display the time between two particular points designated for a repeat playback

1. Stop the tape with the STOP ■ button.
2. Set the PROGRAM switch to B↻A .
3. Press the MARK IN A and B buttons simultaneously.
   While the buttons are pressed, the time between the designated points will be displayed on the time counter.

To repeat between the beginning of a tape and a particular point



1 Set the PROGRAM switch to OFF.

2 Search for a point where the playback is to be stopped and stop the tape momentarily at that point.

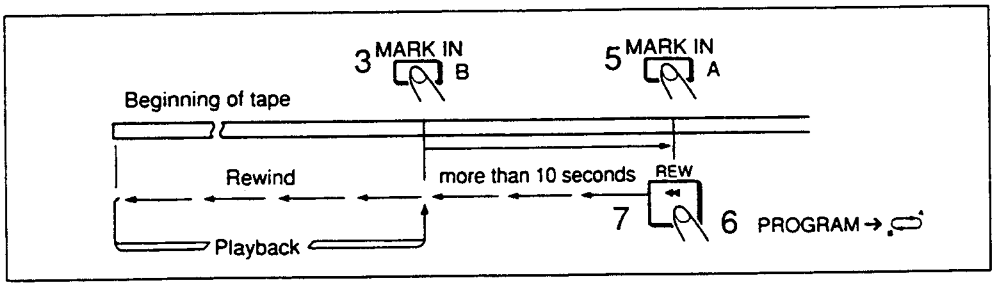
3 Press the MARK IN B button.

4 Press the PLAY ▶ button. After playing the tape for more than 10 seconds, stop the tape momentarily.

5 Press the MARK IN A button.*

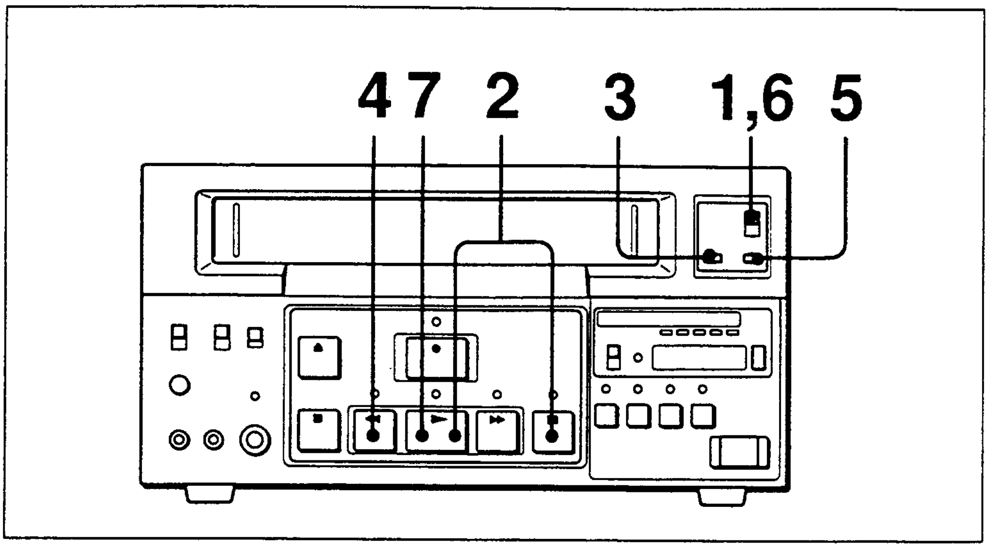
6 Set the PROGRAM switch to $_{B}$⟲^{A}

7 Press the REW ◀◀ button.
The tape rewinds to the beginning and the unit enters the playback mode. Then, the designated portion to the point memorized on the MARK IN B button is repeatedly played back.


3 MARK IN B
5 MARK IN A
Beginning of tape
Rewind
more than 10 seconds
REW
7
6 PROGRAM→
Playback

***Why must the MARK IN A button be pressed?**
If a point before the one memorized on the MARK IN B button has been memorized on the MARK IN A button, the desired portion cannot be repeatedly played back. To avoid this, a point after the desired end point must be memorized on The MARK IN A button.

To repeat between a particular point and the end of the tape



1 Set the PROGRAM switch to OFF.

2 Search for a point where the playback is to begin and stop the tape momentarily at that point.

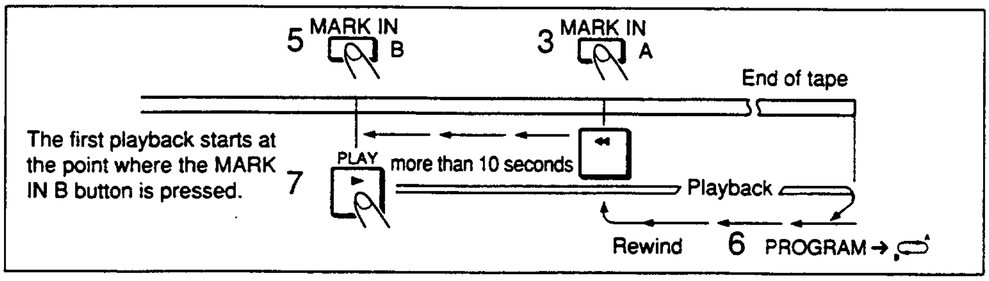
3 Press the MARK IN A button.

4 Press the REW ◀◀ button to rewind the tape for more than 10 seconds, then stop the tape momentarily.

5 Press the MARK IN B button.*

6 Set the PROGRAM switch to $_{B}\circlearrowright^{A}$

7 Press the PLAY ▶ button.
The tape is played back to the end and rewinds to the point memorized on the MARK IN A button, and the playback of the portion from that point to the end of the tape is repeated.



The first playback starts at the point where the MARK IN B button is pressed.

***Why must the MARK IN B button be pressed?**
If a point after the one memorized on the MARK IN A button has been memorized on the MARK IN B button, the desired portion cannot be repeatedly played back. To avoid this, a point before the desired point must be memorized on the MARK IN B button.

To stop the repeat playback

Press the STOP ■ button.

When the programmed operation is finished

Be sure to return the PROGRAM switch to OFF.

MARK IN A and B buttons

The MARK IN A and B buttons can also be used during playback.

Memory backup function

The last memories on the MARK IN and B buttons and the last time counter display will be maintained even if the power is turned off. If you perform a memorizing operation and turn off the power within 15 seconds after the power was turned on, the data in memory will not be retained.

To erase the memory

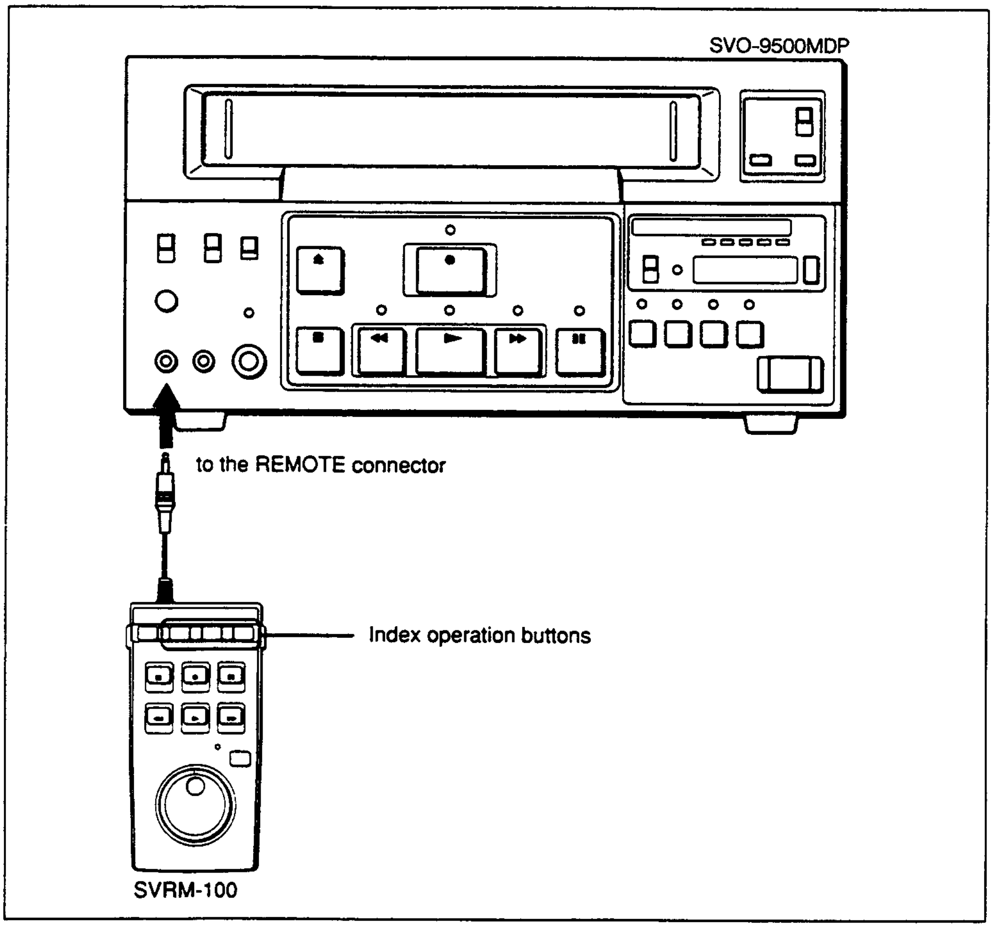
You can memorize only one point for each MARK IN A or B button.
If the button is pressed several times, only the last point will be memorized.
When the RESET button is pressed with the PROGRAM switch set at OFF or $\overset{A}{\rightarrow\!|\!\leftarrow}$, the data are erased from memory and the "0:00:00" point will be memorized on both buttons.

Index Operation (VISS) VISS: VHS Index Search System

By detecting an index signal recorded on a tape, a specific program can easily be located. The index operation is performed on the SVRM-100 remote control unit (optional) connected to the recorder. **Note that the index operation is not possible only with the recorder.**

To mark index signals

The index signals can be either automatically or manually marked. Automatic marking mode is selected at the factory. To change the mode, see "Menu Operations" (page 30).



Automatic marking

Press the STOP ■ button to set the recorder to stop mode. When recording is started by simultaneously pressing the REC ● button and PLAY ▶ button in this status, an index signal for 2.1 seconds is automatically marked at the starting point of recording.
No index signal is marked when recording is started from pause mode.

Manual marking
When manual marking mode is selected through a menu operation, mark index signals as follows.

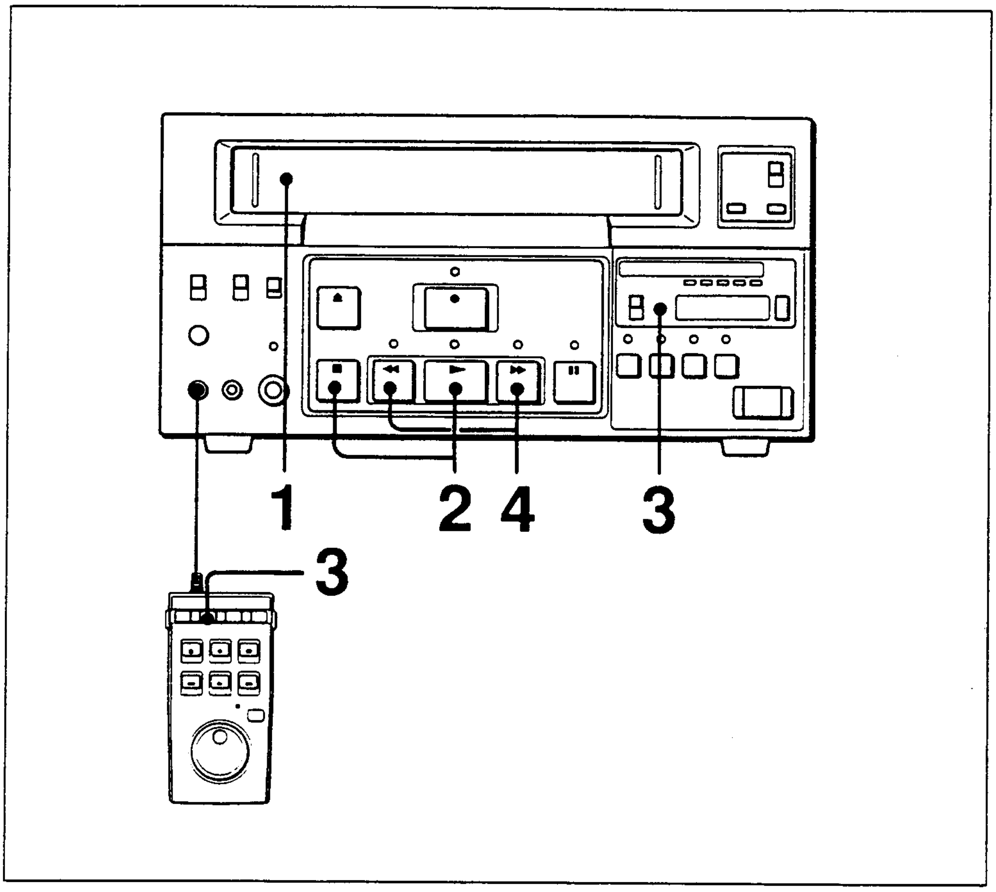
When the recorder is in recording or playback mode, press the MARK button on the remote control unit. The MARK indicator on the recorder blinks and an index signal is marked for about 2.1 seconds. When marking is completed, the MARK indicator goes off.

When the recorder is in stop or pause mode, the MARK indicator lights up when the MARK button is pressed to show that the recorder is in marking standby mode. When the recorder is set to recording or playback mode, the MARK indicator starts blinking and an index signal are marked for about 2.1 seconds. When marking is completed, the MARK indicator goes off.
If the recorder is set to modes other than recording or playback, marking standby mode is cancelled.

You cannot mark any index signal:
- when using a cassette without its safety tab. (Nor can you erase the recorded index signals on the tape.)
- on an unrecorded portion of a tape

Notes on marking index signals
- Mark an index signal more than 2 or 3 minutes before or after the previous index signal so than the recorder can detect it correctly.
- While an index signal is being marked during playback, the sound is not heard, but it will not be erased.

To find the desired picture – Index scan



1 Insert a cassette with index signals marked.

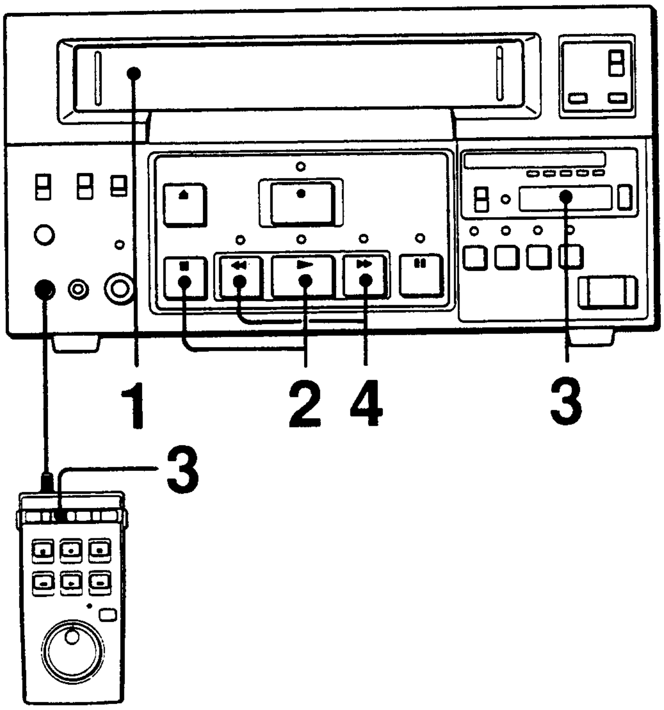
2 Set the recorder to stop or pause mode.

3 Press the INDEX button on the remote control unit.
This activates index scan mode, and the INDEX indicator on the recorder lights up.

4 To scan previous programs, press REW ◀◀ button.
To scan programs ahead, press F FWD ▶▶ button.
Upon finding an index signal, the recorder plays back the tape for approximately 10 seconds and then starts to search for the next index signal.
Repeat the above procedure up to the beginning or the end of the tape.

To release index scan mode
When the tape is scanned up to the beginning or the end, index scan mode is automatically released and the INDEX indicator goes off.
To release the mode in the middle of a tape, press a tape transport button other than the F FWD ▶▶ or REW ◀◀ button.

To find the desired picture by specifying with a number – Index search



1 Insert a cassette with index signals marked.

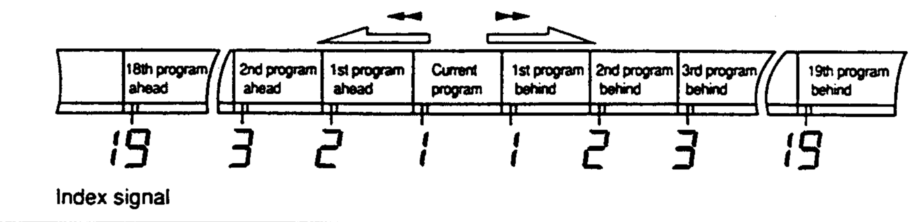
2 Set the recorder to stop or playback mode.

3 Press the INDEX button the number of times there are index signals between the desired point and the current point on the tape (backward or forward).
Up to 39 numbers can be designated. The designated number is displayed on the time counter.

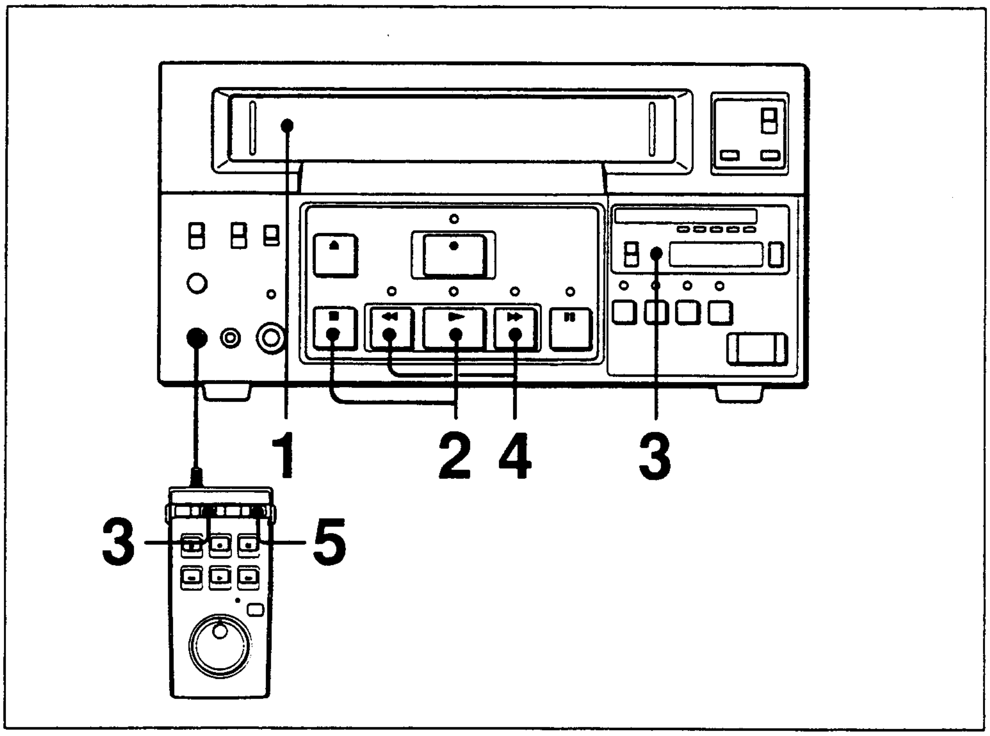
4 To locate a picture before the current point on the tape, press the REW ◄◄ button.
To locate a picture after the current point, press the F FWD ►► button.
Every time an index signal is detected, the number on the time counter decreases by one.
When the number reaches 0, playback begins.

To release index search mode
When the tape is searched up to the beginning or the end, index search mode is automatically released and the INDEX indicator goes off.
To release the mode in the middle of a tape, press a tape transport button other than the F FWD ►► or REW ◄◄ button.

How to designate the index number in index search operation
To search for a picture before the current point on the tape, the current current point is counted as 1.


◀◀
▶▶
18th program ahead
2nd program ahead
1st program ahead
Current program
1st program behind
2nd program behind
3rd program behind
19th program behind
19
3
2
1
1
2
3
19
Index signal

To erase undesired index signals



1 Insert a cassette with index signals marked.

2 Set the recorder to stop or playback mode.

3 Press the INDEX button on the remote control unit.
The INDEX indicator on the recorder lights.

4 To erase the index signal before the current point, press REW ◀◀ button.
To erase the index signal after the current point, press F FWD ▶▶ button.
When an index signal is detected, the recorder enters in playback mode.

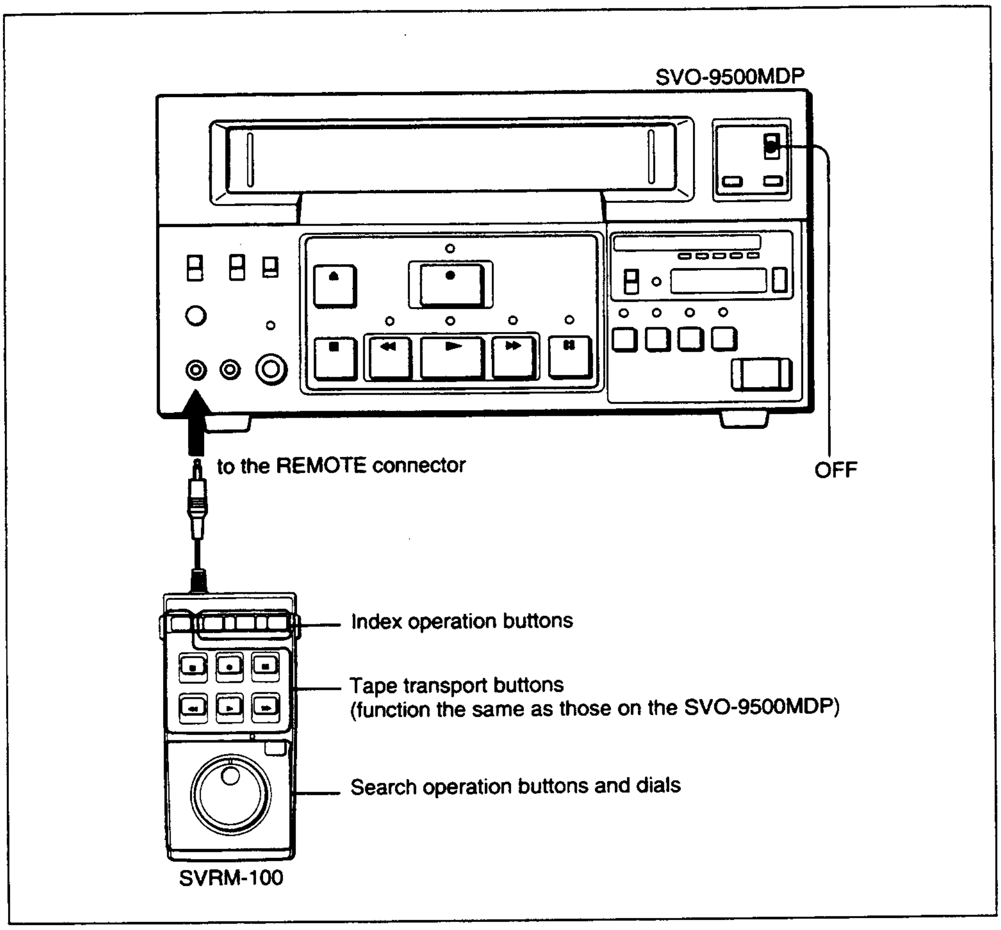
5 Check the picture while it is being played back and when you want to erase the index signal, press the ERASE button on the remote control unit.
The index signal is erased and the recorder searches for the next index signal.

While the index signal is being erased, the sound is not heard but will not be erased.

Using a Remote Control Unit SVRM-100

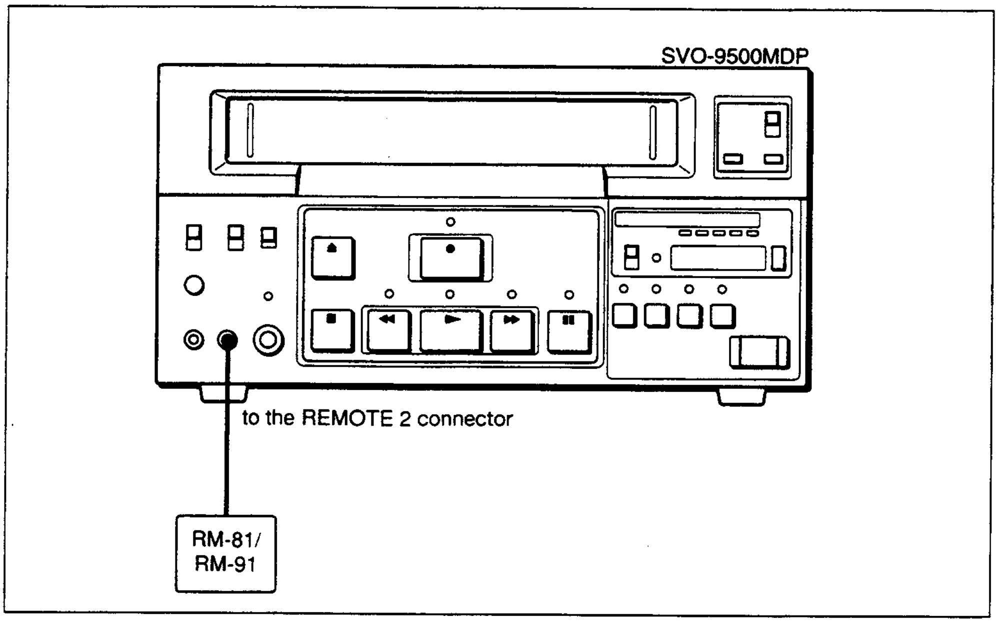
The SVO-9500MDP can be remotely controlled from the SVRM-100 remote control unit (optional). With the SVRM-100, index operation and search operation and jog/shuttle search operations using search dials are possible. The buttons on the SVRM-100 which correspond to those on the recorder function the same.

- To use the SVRM-100, be sure to set the PROGRAM switch of the recorder to OFF.


SVO-9500MDP
to the REMOTE connector
OFF
Index operation buttons
Tape transport buttons
(function the same as those on the SVO-9500MDP)
Search operation buttons and dials
SVRM-100

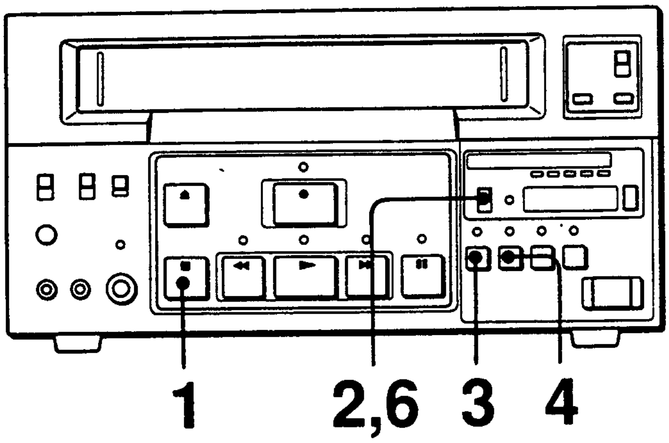
Using a Remote Control Unit RM-81/RM-91

Recording and playback can be started and stopped from the RM-81/RM-91 remote control unit (optional). For details on operations, refer to the instructions for the remote control unit. The operation modes of the remote control unit can be changed through a menu operation. For details, see "Menu Operations" (page 1-30).


SVO-9500MDP
to the REMOTE 2 connector
RM-81/
RM-91

1-8. MENU OPERATIONS

Operation modes of the recorder can be set as follows.



1 Set the recorder to stop mode.

2 Set the CTL/MENU switch to MENU.
The items which can be set are displayed on the time counter block. (See the next page.)

3 Press the ITEM button to select the item to be set.

4 Press the DATA button to set the data for the selected item.

5 Repeat steps 3 and 4 for the necessary items.

6 Set the CTL/MENU switch to CTL.
The data specified in steps 3 and 4 are now stored.

Set item	Display	Set data
VISS operation mode	uIA- $\boxed{\text{On}}$ -OF	To automatically mark VISS index signals. To manually mark VISS index signals.
Foot switch operation mode	FOt- $\boxed{\text{LE}}$ -LL -HE	To use the low edge of a pulse as the trigger. To turn on/off at the lower level of a pulse. To use the high edge of a pulse as the trigger.
Tape end operation mode	tPE-rE -St $\boxed{\text{Et}}$	To automatically rewind the tape from the end in recording mode. To automatically stop the tape at the end in recording mode. To automatically eject the cassette at the end of the tape in recording mode.
S-VHS recording selection	SuH- $\boxed{\text{At}}$ -OF	To automatically record on an S-VHS tape with the S-VHS system and on a VHS tape with the VHS system. To record on both S-VHS and VHS tape with the VHS system.
Digital CNR ON/OFF	Cnr- $\boxed{\text{On}}$ -OF	To turn on the digital chroma noise reducer. To turn off the digital chroma noise reducer.
Digital YNR ON/OFF	Ynr- $\boxed{\text{On}}$ -OF	To turn on the digital luminance noise reducer. To turn off the digital luminance noise reducer.
Digital Y enhancer ON/OFF	YEn- $\boxed{\text{On}}$ -OF	To turn on the digital enhancer. To turn off the digital enhancer.
Freeze mode selection	FrE- $\boxed{\text{Fr}}$ -FI	To initially display a frame freeze picture. To initially display a field freeze picture.

☐ : Factory setting

1-9. TROUBLESHOOTING

Should you have a problem on your recorder, first check the three items in Check 1 and then the appropriate item in Check 2 or Check 3.

CHECK 1

1 Check that the AC power cord is firmly connected. (See page 8.)

2 Check that the POWER switch is set to ON.

3 Check the connections. (See page 8.)

CHECK 2

Symptoms	Possible causes and corrective actions	Page for ref.
AUTO OFF lamp lights and function buttons do not function.	Moisture has condensed inside the unit. Keep the power on and wait until the lamp goes off indicating that the moisture has evaporated.	34
The tape suddenly stops and function buttons do not function.	Eject the cassette and take up the leader tape manually.	—
The cassette cannot be ejected.	Turn off the recorder and contact your nearest Sony facility.	—

CHECK 3

Symptoms	Corrective actions	Page for ref.
A cassette cannot be inserted.	• Insert the cassette correctly. • Check whether another cassette has already been inserted. • Check whether the AUTO OFF lamp is lit.	— — 34
The tape does not run when any of the function buttons is pressed. Recording cannot be done.	• Check that the REC lamp is lit. • Check that the safety tab on the rear of the cassette is in place. • Check that the PROGRAM switch is set at OFF.	— 10 —
Snow or streaks appear on the playback picture.	• Adjust the TRACKING control. • Clean the video head.	17 34

Moisture condensation

When the unit is moved directly from a cold place to a warm place, or when the unit is operated in a place with high humidity, moisture may condense inside the unit. If the tape runs in this condition, it may adhere to the head drum or the tape guide and be damaged. To prevent this possibility, the unit is equipped with a moisture detector. The AUTO OFF lamp lights to indicate that moisture has been detected inside the unit. When this lamp is lit, the cassette is automatically ejected, if it is inserted, and the unit does not function, even if any of the function buttons is pressed.

- When the unit is first moved to place in which it is subjected to condensation, we **recommend you to wait for about ten minutes and to turn the power on** so that the moisture detector will operate.

Video Head Cleaning

If the picture temporarily disappears or if snow or noise show up in the picture

The video head may be contaminated and should be cleaned. Use the optional cleaning cassette and perform cleaning as follows.

1. Remove the cassette being played.
2. Insert the cleaning cassette in the same manner as standard cassettes.
3. Press the RESET button to set the tape counter to "0:00:00."
4. Press the PLAY ▶ button and the REC ● button simultaneously.
5. When the time counter indication reaches "0:00:30," press the STOP ■ button to stop the tape.
6. Remove the cassette.

Notes

- **Do not run a cleaning cassette for more than 30 seconds at a time.** Excessive use of the cleaning cassette will shorten the life of the heads.
- The tape counter does not function when no video signal is connected to the recorder. Count the time using a watch.
- Do not rewind the cleaning cassette every time it is used. Run the tape to its end, then rewind it.
- You can run through a cleaning cassette several times, although it does gradually become less effective.

Video Head Replacement

If picture quality is still deficient after cleaning, the video heads may need to be replaced. The life of the heads is approximately **500 to 1000 hours of use**. With this unit, the accumulated operation time of the heads can be checked as follows.

1 Set the PROGRAM switch to B⇄A .

2 Keep the RESET button depressed for amount 2 seconds.
The total accumulated operation time of the head drum is now shown on the counter in 1-hour increments.

Regarding head replacement, please consult your Sony service facility.

SECTION 2
SERVICE INFORMATION

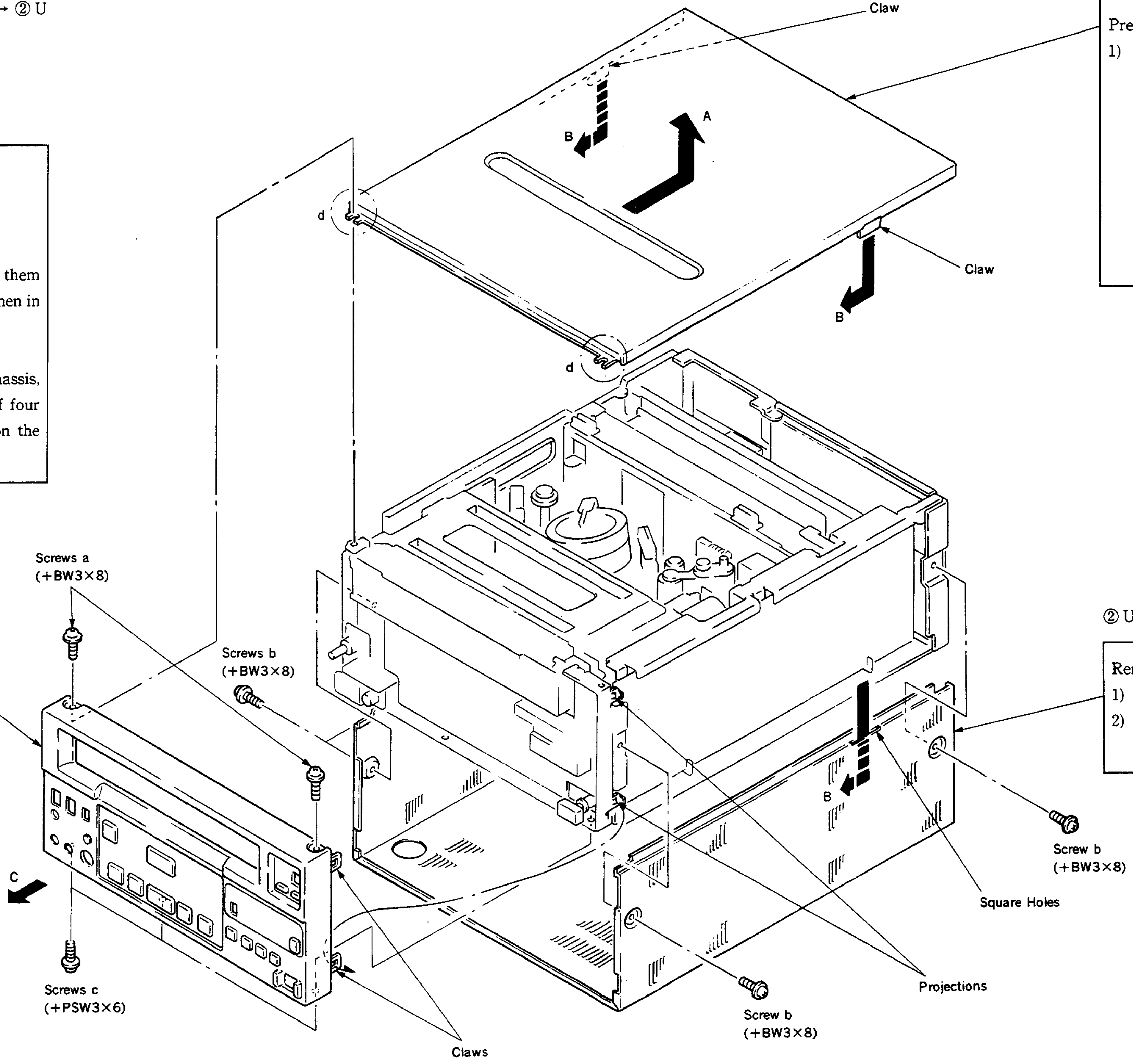
2-1. HOW TO REMOVE AND RE-INSTALL THE EXTERNALS

Remove the externals in the sequence ① Top panel → ② U case → ③ Front panel.

③ Front panel

Removal
1) Remove the top panel.
2) Remove the U case.
3) Remove three c screws.
4) Open four left and right claws slightly, disengage them from the projections in the chassis, and remove then in the direction of arrow C.

Precautions for re-installation
1) While aligning the boss with the hole in the chassis, push in the front panel until the square holes of four left and right claws lock into the projections on the chassis.


Claw
A
B
d
Claw
B
d
Screws a
(+BW3×8)
Screws b
(+BW3×8)
C
Screws c
(+PSW3×6)
Claws
B
Screw b
(+BW3×8)
Square Holes
Projections
Screw b
(+BW3×8)

① Top panel

Removal
1) Remove two screws a, then remove the panel in the direction of arrow A.

Precautions for re-installation
1) Insert two left and right claws into the square holes in the U case, then move the d part in the direction of arrow B and insert it between the front panel and the chassis. (Fig. 1)

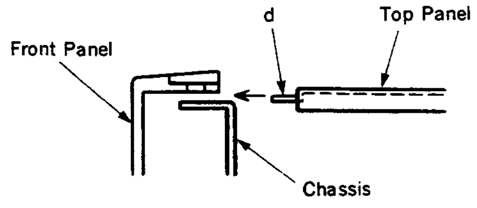

d
Top Panel
Front Panel
Chassis

Fig. 1

② U case

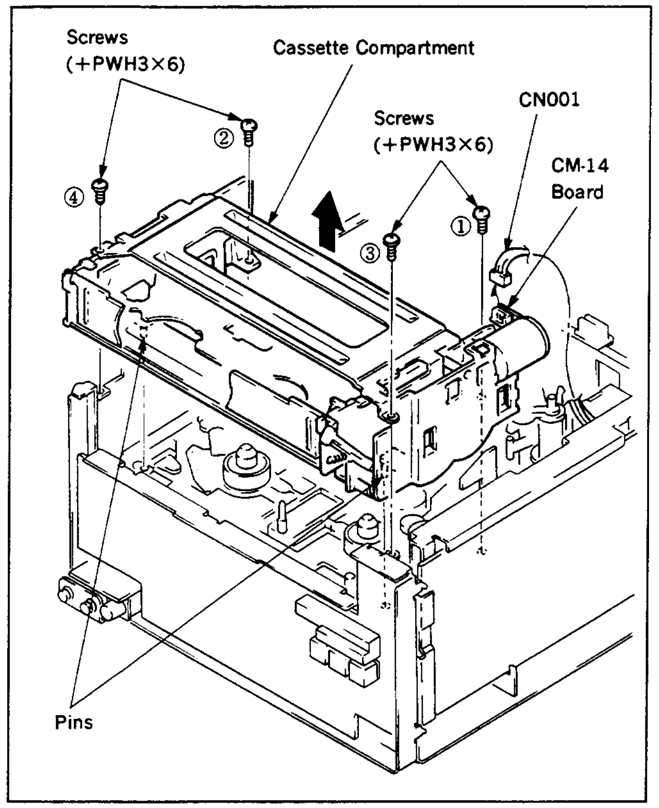
Removal
1) Remove the top panel.
2) Place the unit with the top face at the bottom, then remove four left and right screws b.

2-2. HOW TO REMOVE THE CASSETTE COMPARTMENT (FL ASS'Y)

1. Remove the top panel, U case and front panel according to sub-section 2-1.
2. Disconnect connector CN001 from the CM-14 board.
3. Remove four screws, then remove the cassette compartment in the direction of the arrow.

Precautions of re-installing the cassette compartment.

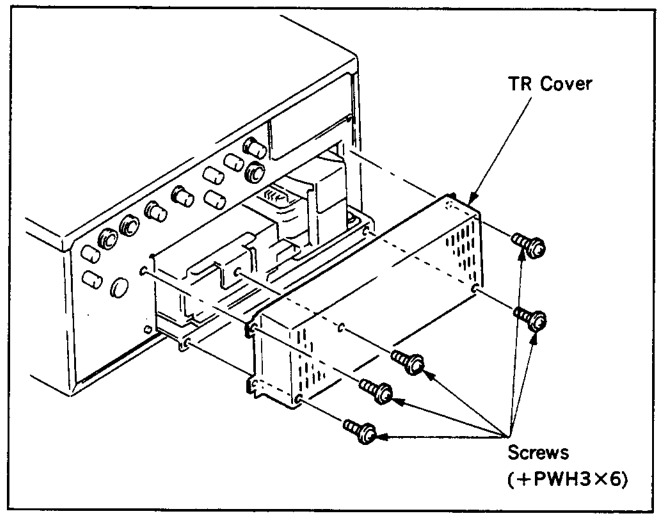
1) Align two pins of cassette compartment to the holes of mechanical shassis.
2) Fix the screws in order from ① to ④.


Screws
(+PWH3×6)
Cassette Compartment
CN001
Screws
(+PWH3×6)
CM-14
Board
②
④
③
①
Pins

2-3. HOW TO REMOVE THE POWER SUPPLY BLOCK

2-3-1. How to remove the DC-53A Board

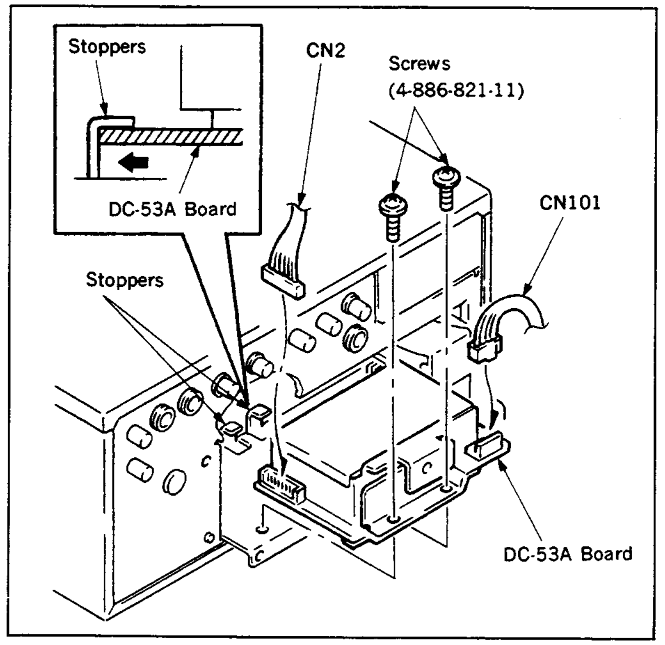
1. Remove five screws, then remove the TR cover.


TR Cover
Screws
(+PWH3×6)

2. Disconnect connector CN101 of power trans harness from the DC-53A board.
3. Remove two screws, then pull out the DC-53A board to the position of the figure.
4. Disconnect connector CN2 of power switch harness from DC-53A board.

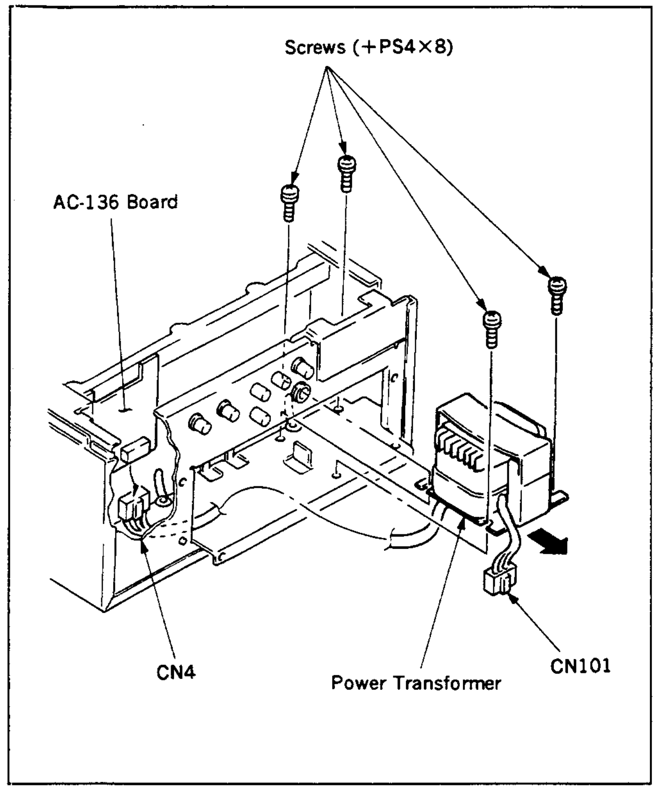
Precautions for re-installing the DC-53A board.

- Block the DC-53A board for stoppers of chassis, then install the DC-53A board.


Stoppers
DC-53A Board
Stoppers
CN2
Screws
(4-886-821-11)
CN101
DC-53A Board

2-3-2. How to remove the Power Transformer

1. Remove the top panel according to sub-section 2-1.
2. Remove the DC-53A board according to sub-section 2-3-1.
3. Disconnect connector CN4 of power trans harness from the AC-136 board.
4. Remove four screws, then remove power transformer in the direction of the arrow.


Screws (+PS4×8)
AC-136 Board
CN4
Power Transformer
CN101

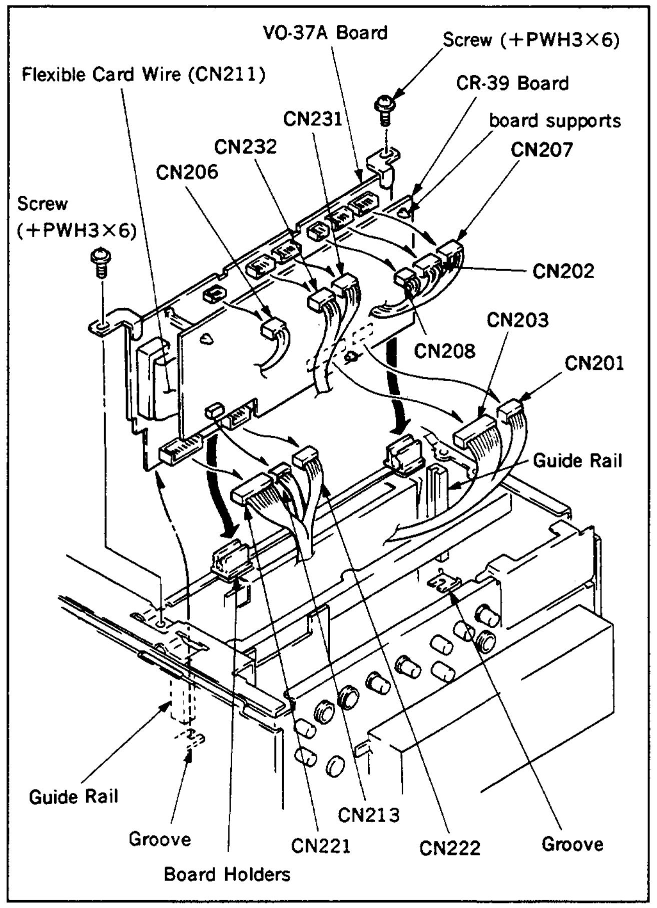
2-4. HOW TO REMOVE THE PRINTED CIRCUIT BOARD

2-4-1. How to remove the VO-37A and CR-39 Boards

1. Remove the top panel according to sub-section 2-1.
2. Remove two screws, and pull up the VO-37A/CR-39 boards.
3. Insert the VO-37A board into the two board holders for standing it.
4. Disconnect the connector CN213 of the CR-39 board. (S/N 10031 and higher)
5. Disengage three board supports from the CR-39 board, and open the CR-39 board.
6. Disconnect ten connectors (CN201, 202, 203, 206, 207, 208, 221, 222, 231 and 232) and the flexible card wire (CN211) of the VO-37A board.

Precautions for installation.

1) Align the VO-37A board with guide rails and grooves of the left/right chassis.
2) When S/N 10001 to 10031, CN213 of the CR-39 board dosen't connect with connector of harness.

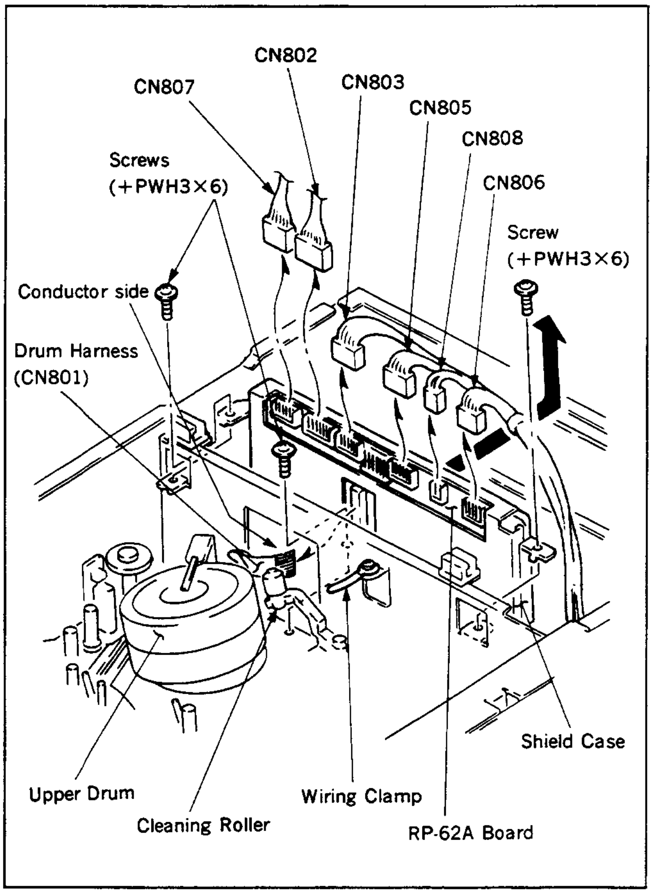

VO-37A Board
Screw (+PWH3×6)
Flexible Card Wire (CN211)
CR-39 Board
CN231
board supports
CN232
CN207
CN206
Screw
(+PWH3×6)
CN202
CN203
CN208
CN201
Guide Rail
Guide Rail
CN213
Groove
CN221
CN222
Groove
Board Holders

2-4-2. How to remove the RP-62A Board

1. Remove the top panel according to sub-section 2-1.
2. Remove harnesses from wiring clamp in the figure.
3. Disconnect six connectors (CN802, 803, 805 through 808) of the RP-62A board.
4. Remove the VO-37A/CR-39 boards according to sub-section 2-4-1. (Note that, there is no need to disconnect the connectors.)
5. Remove three screws, and then remove the drum harness from CN801 of the RP-62A board.
6. Remove the RP-62A board together with the shield case in the direction of the arrow.

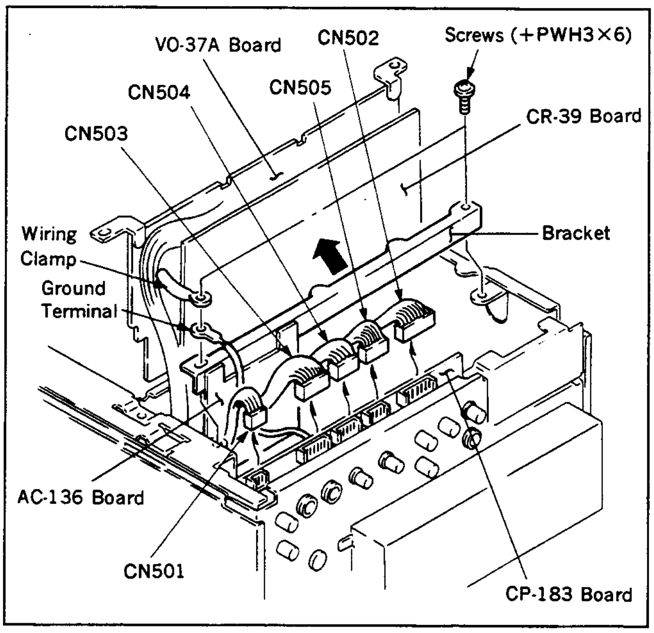
Precautions for installation.

1) Be careful of the direction of the connector side when re-connecting the drum harness.
2) Confirm that the drum harness does not touch the upper drum and the cleaning roller.
3) Fix the harnesses of the connectors CN803, 805, 806 and 808 with wiring clamp.

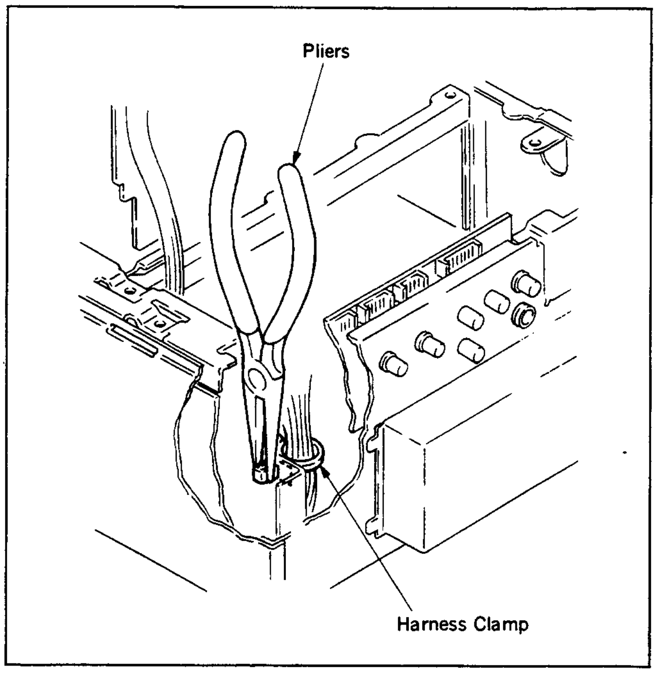

CN802
CN807
CN803
CN805
CN808
Screws
(+PWH3×6)
CN806
Screw
(+PWH3×6)
Conductor side
Drum Harness
(CN801)
Shield Case
Upper Drum
Wiring Clamp
Cleaning Roller
RP-62A Board

2-4-3. How to remove the CP-183 Board

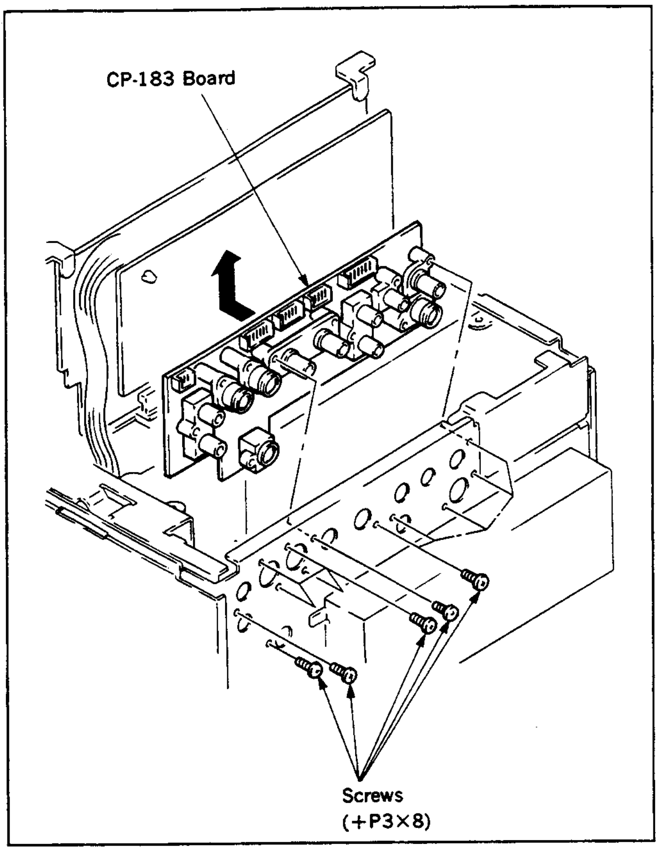
1. Remove the VO-37A/CR-39 boards according to sub-section 2-4-1. (Note that, there is no need to disconnect the connectors.)
2. Remove two screws, then remove the wiring clamp and ground terminal of the CP-183 board.
3. Move the bracket with the AC-136 board in the direction of the arrow.
4. Disconnect five connectors (CN501 through 505) of CP-183 board.


VO-37A Board
CN502
Screws (+PWH3×6)
CN504
CN505
CR-39 Board
CN503
Wiring
Clamp
Ground
Terminal
Bracket
AC-136 Board
CN501
CP-183 Board

5. Remove the harness clamp from the position of the figure with pliers.


Pliers
Harness Clamp

6. Remove twelve screws, then remove the CP-183 board in the direction of the arrow.



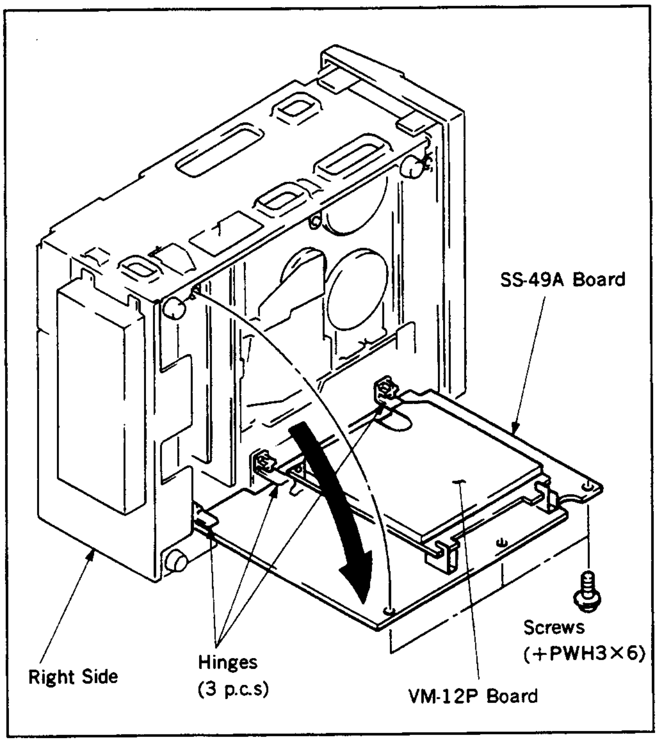
CP-183 Board
Screws
(+P3×8)

2-4-4. How to open the SS-49A Board

1. Remove the top panel and the U case according to subsection 2-1.
2. Stand up the VTR with the right side face downward.
3. Remove three screws, then open the SS-49A board in the direction of the arrow.

Removal method

1) Disconnect all of the connectors coming from the main unit, from the SS-49A board.
2) Remove three hinges from the SS-49A board.



SS-49A Board
Screws
(+PWH3×6)
Right Side
Hinges
(3 p.c.s)
VM-12P Board

2-5. MEMORY RETENTION FUNCTION OF NOVRAM (SS-49A BOARD)

The SS board has NOVRAM M6M80011AP (IC102) (F-7) which memorizes the hours meter and menu setting data. It also has a NOVRAM memory backup capacitor (C103) (L-2). If the SS board, the capacitor or the NOVRAM is replaced, the data set prior to replacement will be lost. It is thus necessary to make the initial settings for the NOVRAM then perform menu setting once again. In this case, however, the hours meter value will be cleared to zero, and cannot be set again. (If it is necessary to replace a part, it is recommended that you make a record of the data in the memory prior to replacing the part.)

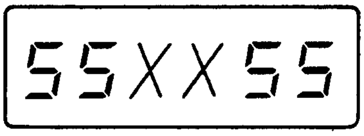
Procedure of initially setting the NOVRAM (same as factory setting)

(1) Set No. 1 and No. 5 switches of DIP switch S101 on the SS board (H-9) to ON.

(2) Short TP107 (D-9) and E5 (GND) (C-9) on the SS board with the shorting clip.

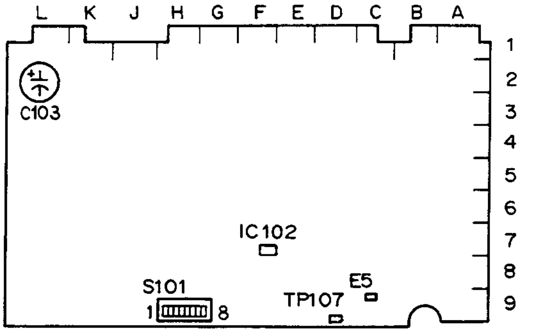
(3) Turn the tracking control on the front panel to the FIXED position, then turn the POWER switch ON.

(4) Wait until the following appears on the display on the front panel.



(5) Remove the shorting clip, then set No. 1 and No. 5 switches of S101 to OFF.

(6) Turn the POWER switch OFF.

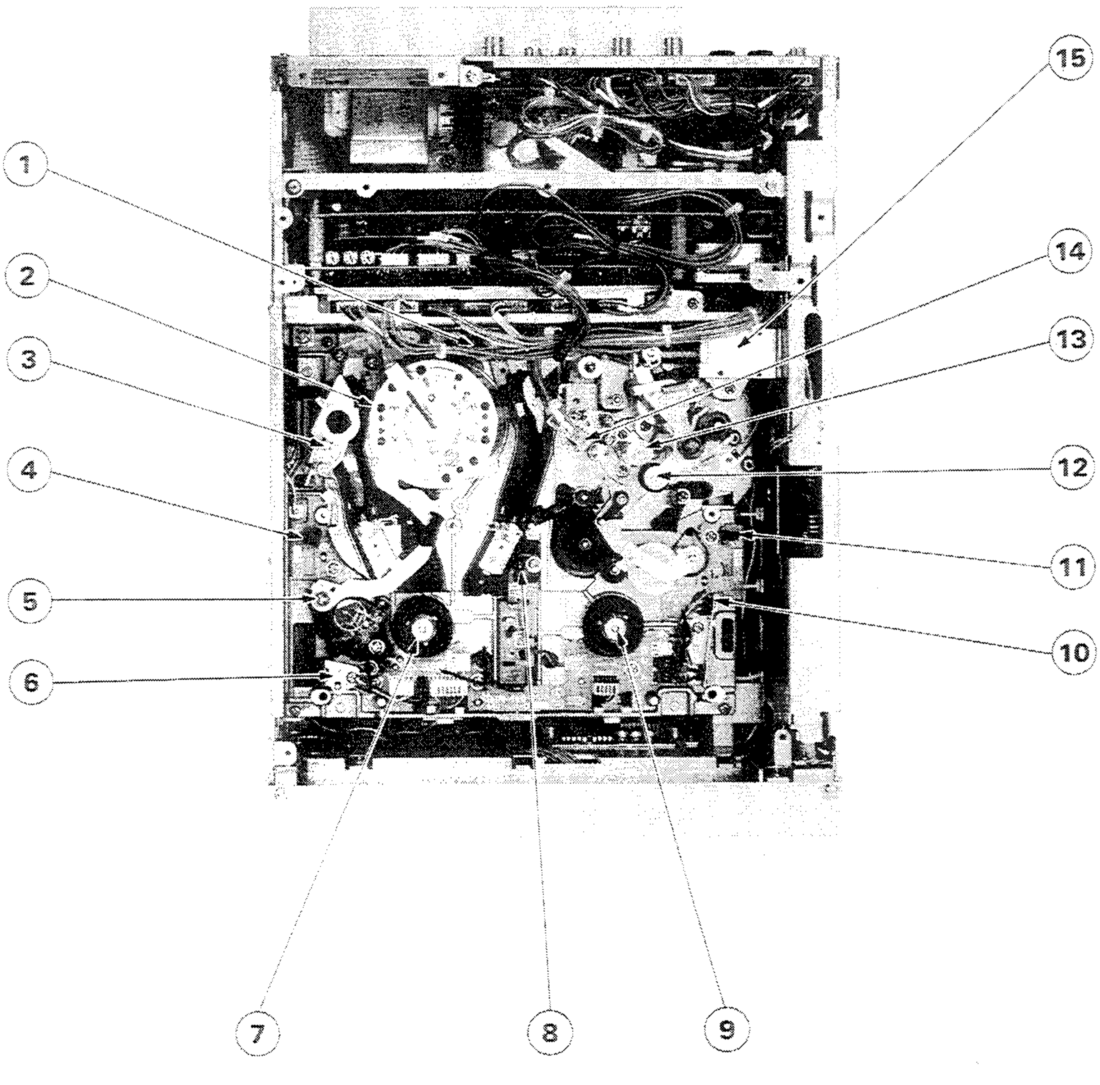


SS Board Component Side

2-6. LOCATION OF MAIN PARTS

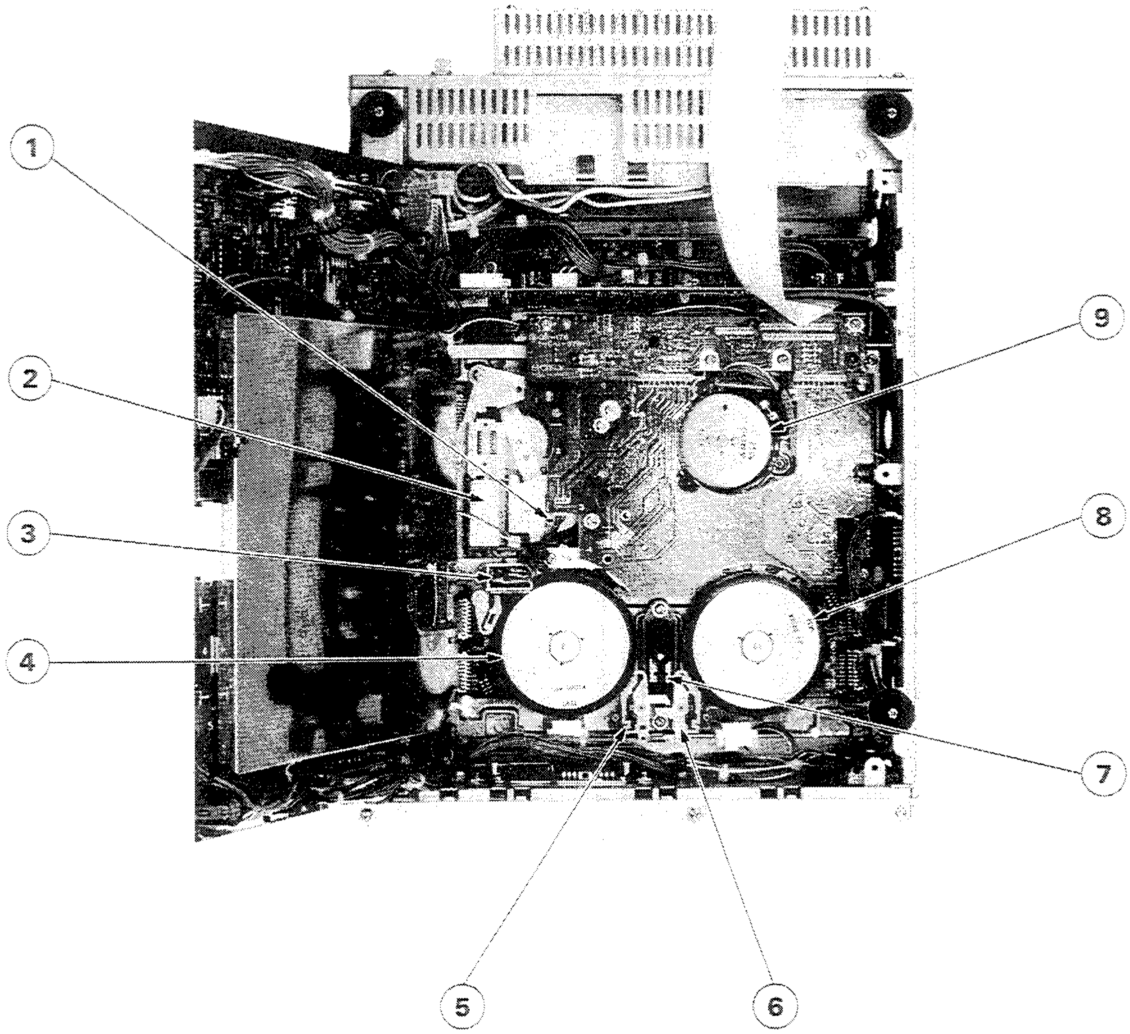
2-6-1. Location of the Main Mechanical Parts/Components

(TOP VIEW)



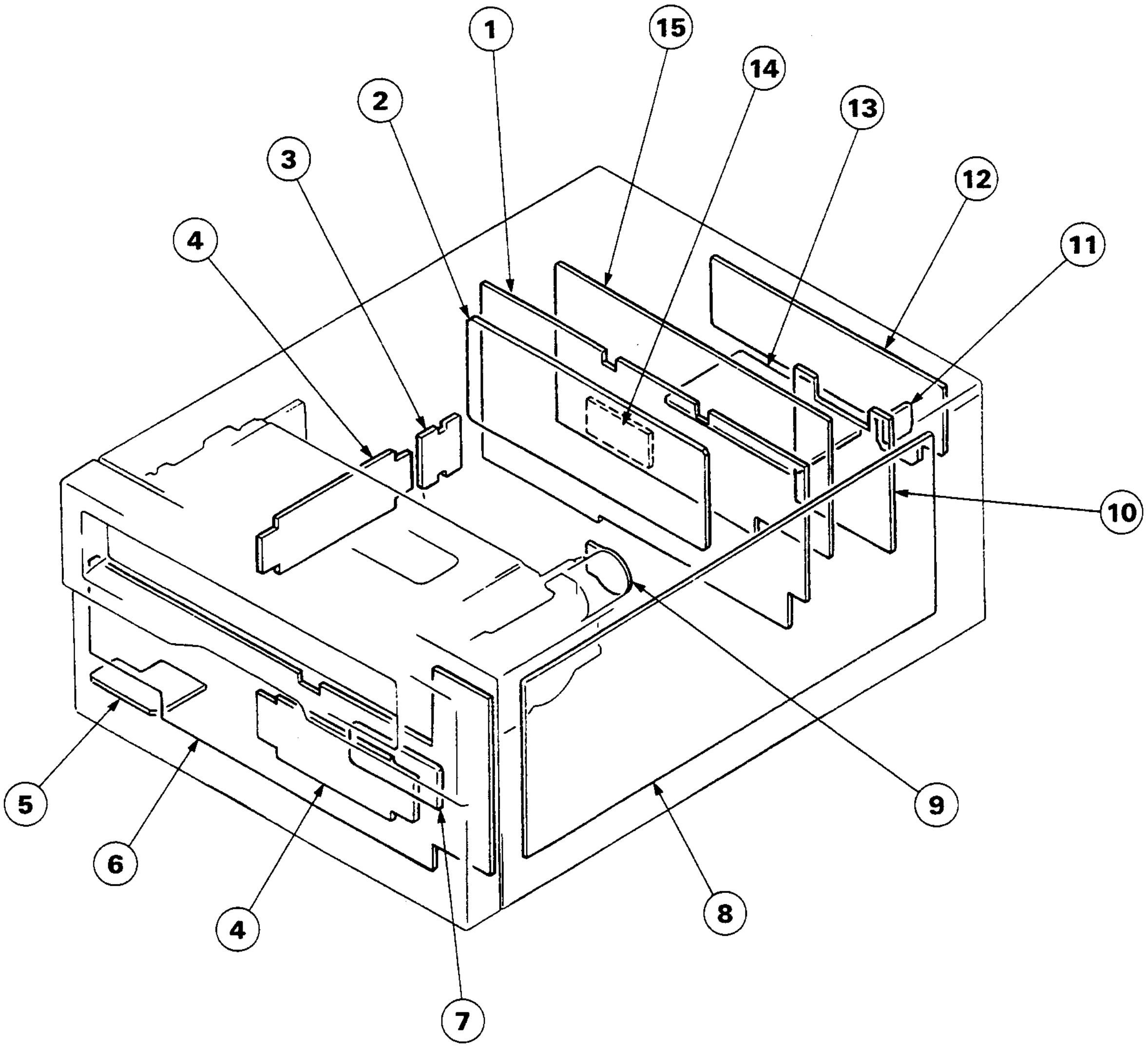
① Cleaning Roller	⑨ Take-up Reel Table
② Drum Assembly	⑩ Cassette Down Switch
③ Full Erase Head	⑪ Tape Top Sensor
④ Tape End Sensor	⑫ Pinch Roller
⑤ Tension Regulator	⑬ Capstan Shaft
⑥ Miss REC Switch	⑭ AUDIO/CTL Head
⑦ Supply Reel Table	⑮ Pinch Solenoid
⑧ Tape Top/End LED	

(BOTTOM VIEW)

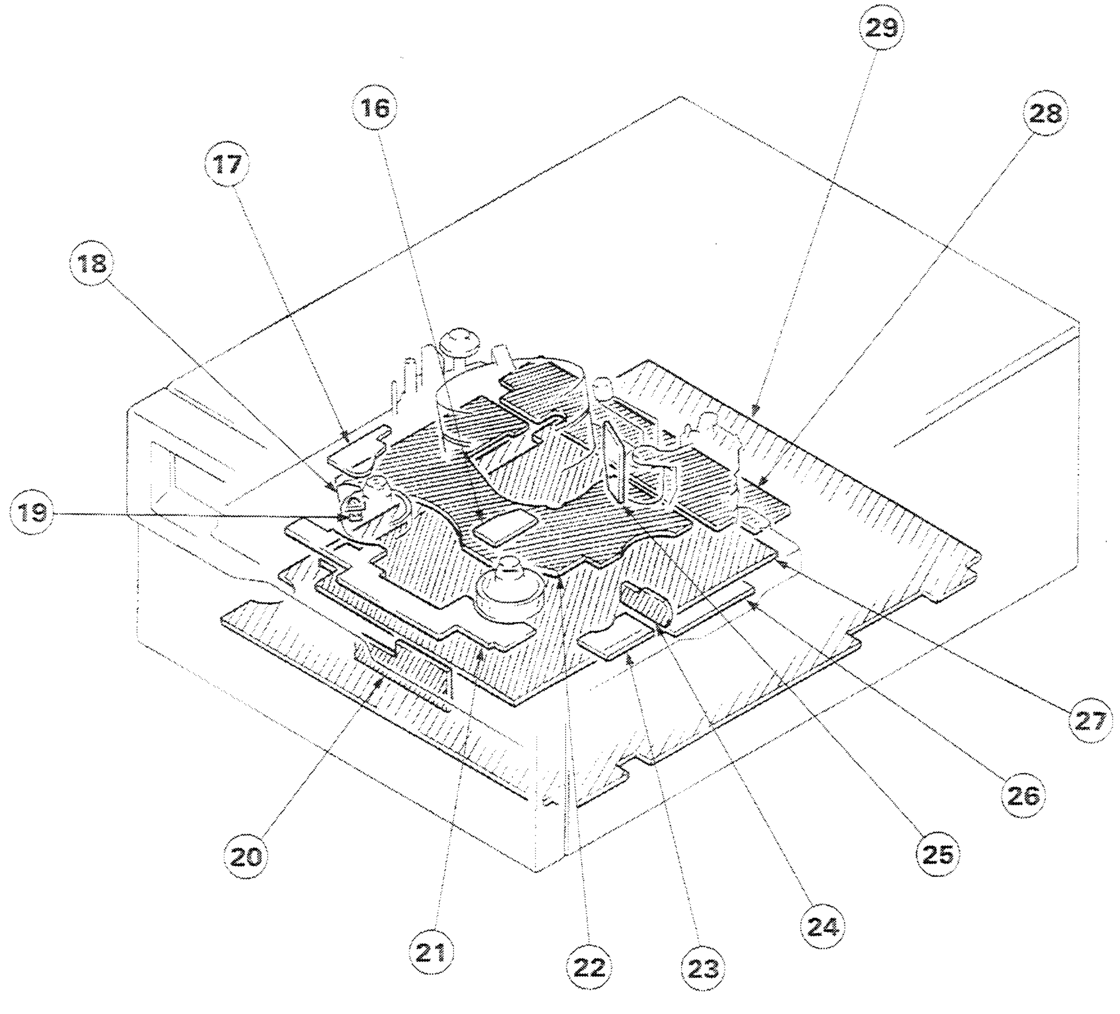


① Capstan Motor	⑥ S • Brake Arm
② Cam Motor Assembly	⑦ Brake Solenoid
③ LDB Brake Solenoide	⑧ Supply Reel Motor
④ Take-up Reel Motor	⑨ Drum Assembly
⑤ T • Brake Arm	

2-6-2. Location of the Printed Circuit Boards



① VO-37A Board	⑨ CM-14 Board (Cassette Compartment)
② RP-62A Board	⑩ AC-136 Board
③ DUS-544 Board	⑪ DUS-442 Board
④ DR-153 Board	⑫ CP-183 Board
⑤ CN-633 Board	⑬ DC-53A Board
⑥ KY-219 Board	⑭ DUS-592 Board (Serial No. 10031 and higher)
⑦ DP-165 Board	⑮ CR-39 Board
⑧ AU-161A Board	



29
16
28
17
18
19
27
26
25
20
24
21
22
23

⑯ LE-80 Board	㉓ SE-152 Board
⑰ SE-151 Board	㉔ LD-35 Board
⑱ SE-159 Board	㉕ AH-28 Board
⑲ LE-86 Board	㉖ DUS-534 Board
⑳ DUS-445 Board	㉗ VM-12P Board
㉑ HN-160 Board	㉘ DR-176 Board
㉒ DR-167 Board	㉙ SS-49A Board

2-7. PRINTED CIRCUIT BOARD

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	RP-62A	Video & AFM Head Amp.
	CR-39	Chroma Process
	VM-12P	Chroma Noise Reducer/Video Memory/Chroma Encorder
	VO-37A	Y/C Video Process
	(Include DUS-592)	
AUDIO	AU-161A	AFM Process/Normal Audio Process
	AH-28	Audio/Erase/CTL Head
SERVO • SYSTEM CONTROL	SS-49A	Servo & System Control
	(Include DUS-445 DUS-534)	
	DR-153 (a)	T-Reel Driver
	DR-153 (b)	S-Reel Driver
	DR-167	CAM Mode Detect & Drum Motor Driver
	DR-176	Capstan FG Amp. & Capstan Motor Driver
	CM-14	Cassette Compartment Motor
	LD-35	Loading Motor
	LE-80	Tape Top/End LED
	LE-86	Tension Regulator LED
	KY-219	Function Key/LED/Switch
	DP-165	Counter Display
	SE-151	Tape End Sensor
	SE-152	Tape Top Sensor
	SE-159	Tension Regulator CDS Detect
	HN-160	Connection
	DUS-544	Connection
POWER	AC-136	AC Input
	DC-53A	AC-DC Power Regulator
CONNECTOR	CP-183	Connection of Rear Connector
	(Include DUS-442)	
	CN-633	Connection of Front Connector

2-8. CONNECTORS

When external cables are connected to the various connectors on the rear panel during maintenance, the hardware listed below (or equivalents) must be used.

PANEL INDICATION	CONNECTOR/HARDWARE
VIDEO IN VIDEO OUT	1-560-069-11 PLUG, BNC, MALE
VIDEO IN (S VIDEO) VIDEO OUT (S VIDEO)	YC-15EV (1.5 m), YC-30EV (3 m), SYC-2 (2 m), or SYC-5 (5 m) : CABLE (Option)
AUDIO IN AUDIO OUT MONITOR OUT	1-506-138-11 PLUG, PHONO
INDICATE	SVAC-100 (Option)

2-9. CONNECTOR INPUT/OUTPUT SIGNAL

The audio/video connector INPUT/OUTPUT signals of the connector panel are as follows.

INPUT

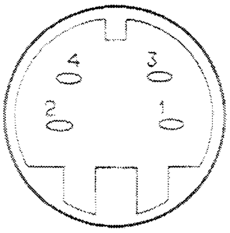
VIDEO IN : BNC type×2 for a bridging connection
$1.0\pm^{1}_{0.5}$ V p-p, 75 ohms, Unbalanced, Sync negative
S VIDEO IN : 4-Pin mini DIN×2 for a bridging connection (See below)
Luminance signal : 1.0 V p-p, 75 ohms, Unbalanced
Color signal : 0.3 V p-p, 75 ohms, Unbalanced
AUDIO IN : Phono jack×2
CH-1/L, CH-2/R −10 dBs (0 dBs=0.775 Vrms), 47 kilohms, Unbalanced
MIC : Phone jack×1
−60 dBs (0 dBs=0.775 Vrms), 3 kilohms, Unbalanced

OUTPUT

VIDEO OUT : BNC type×1
1.0±0.2 V p-p, 75 ohms, Unbalanced, Sync negative
S VIDEO OUT : 4-Pin mini DIN×1 (See below)
Luminance signal : 1.0 V p-p, 75 ohms, Unbalanced
Color signal : 0.3 V p-p, 75 ohms, Unbalanced
AUDIO OUT : Phono jack×2
CH-1/L, CH-2/R −10 dBs (0 dBs=0.775 Vrms), (47-kilohm load), Unbalanced
MONITOR OUT : Phono jack×1
−5 dBs (0 dBs=0.775 Vrms), (47-kilohm load), Unbalanced

● S VIDEO Connector

⟨external view⟩

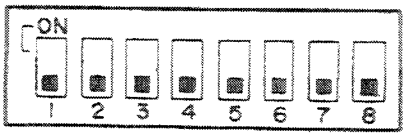


Pin No.	Signal
1	LUMINANCE(G)
2	COLOR(G)
3	LUMINANCE(X)
4	COLOR(X)

2-10. SWITCH SETTING

- SS-49A Board

S101 No.1 to No.8 : OFF (Shipped position)



Function of S101 switches (ON position)

S101-1. Error detection signal muting/tracking control center position detection.
Error detection signal muting : This switch disables error signals of system control block. Even though the machine operation is not stopped due to error detection, it can proceed to the next machine operation.
Tracking center position detection : Set the tracking control to center position when power is turned on while TP107 and GND are short-circuited, the center position of TRACKING control is stored in the form of DC voltage by microprocessor (IC101/SS-49A)

S101-2. E-E control signal muting : This switch disables the signal that mutes E-E signal.
Machine can enter E-E mode even in the mode where E-E mode is cancelled.
E-E can be established with the cassette whose record safety tab is broken.

S101-3. Always OFF

S101-4. Always OFF

S101-5. MENU initialize
The content of MENU setting is re-set into the default content of initial setting.

S101-6. Always OFF

S101-7. SERVICE mode : Ordinary maintenance work is done in OFF mode.

S101-8. TOP/END sensor muting
This switch mutes tape top and tape end detection signals.

2-11. HOW TO OPERATE THE CASSETTE COMPARTMENT ASS'Y AND ALSO THE VTR WITHOUT TAPE

(1) Remove the cassette compartment according to sub-section 2-2.

(2) Turn ON No. 8 switch of DIP switch S101/SS board (H-9). (This is to neutralize the tape top/end sensor function)

(3) Push down the CASSETTE DOWN switch with tape, etc.

(4) Turn the POWER switch ON.

In this condition, the VTR can be operated from the remote controller (RM-V200, RM-V100, SVRM-100 etc.).

Note : Be sure to turn No. 8 switch OFF after completion of operation.

[Operating the VTR with the cassette compartment removed and a cassette tape loaded]

- Be sure to turn OFF No. 8 switch of DIP switch S101. (If the DIP switch is turned ON, the tape will not stop at the tape top/end, resulting in possible damage to the head tip and deformation of the tape guide.)

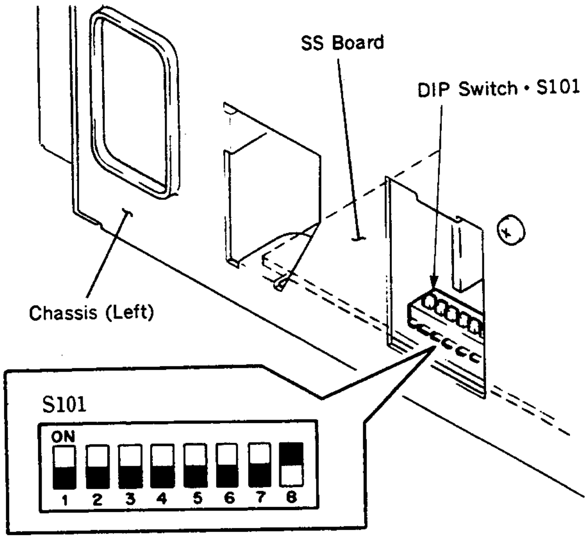


Fig. 1

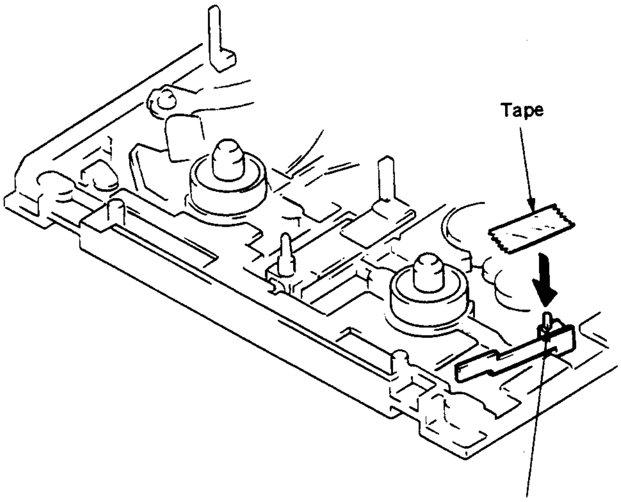


Fig. 2

2-12. HOW TO REMOVE CASSETTE TAPE WHEN IT CANNOT BE EJECTED

1. Remove the top panel and the U case according to sub-section 2-1.
2. Open the SS board according to sub-section 2-4-4.
3. Remove the screw, then remove the cam motor ass'y from the drive gear ass'y. (Fig. 1)
4. Rotate the worm wheel of the drive gear ass'y with the fingers in the direction of the arrow until the tape threading guides are in the unthreading end state. (Fig. 1)
5. Rotate the S side reel motor with the fingers in the direction of the arrow so that the tape is taken up into the cassette. (Fig. 1)
6. Rotate the loading motor of the cassette compartment ass'y with the fingers in the direction of arrow A, and eject the cassette. (Fig. 2)

How to re-install the cam motor ass'y

1) Fit the groove of the cam motor ass'y over the 'a' face of the drive gear ass'y. (Fig. 1)
2) Align the hole in the cam motor ass'y with the projection on the drive gear ass'y. (Fig. 1)
3) Set the cam motor parallel to the 'b' face of the drive gear ass'y, then screw it fixed. (Fig. 3)

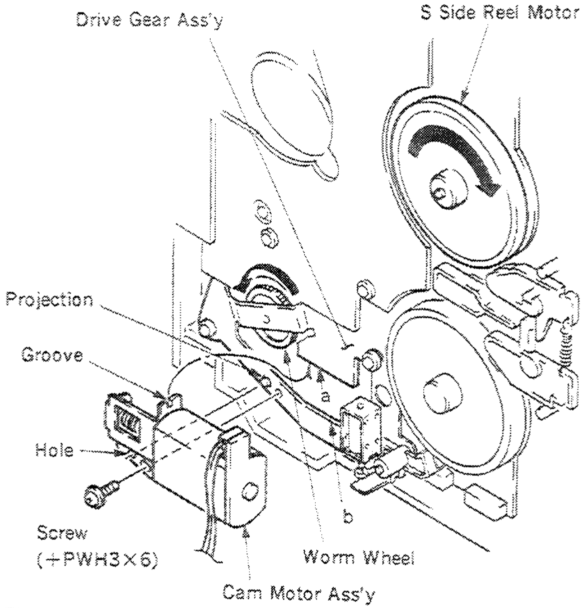

Drive Gear Ass'y
S Side Reel Motor
Projection
Groove
a
Hole
b
Screw
(+PWH3×6)
Worm Wheel
Cam Motor Ass'y

Fig. 1

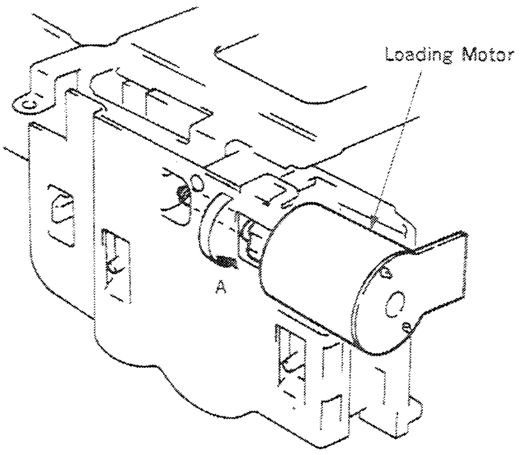
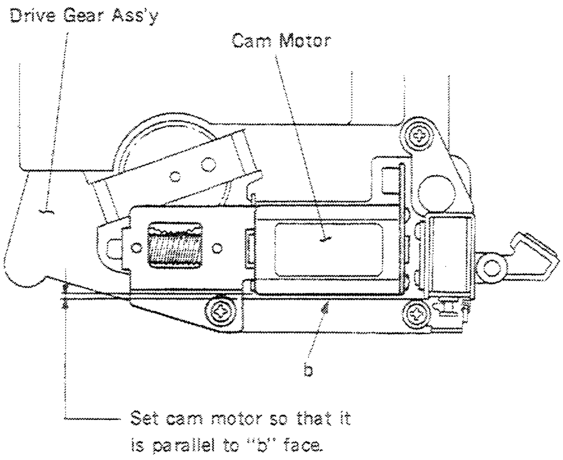

Loading Motor
A

Fig. 2


Drive Gear Ass'y
Cam Motor
b

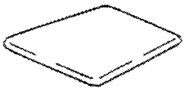
Set cam motor so that it is parallel to "b" face.

Fig. 3

2-13. FIXTURES

Ref. No	Part No.	Description	For Use
J-1	2-034-697-00	Cleaning Cloth	Cleaning
J-2	9-919-573-01	Cleaning Fluid	Cleaning
J-3	7-700-736-05	L-Shaped Hexagonal Wrench (1.5 mm)	Reel table ass'y replacement
J-4	7-700-736-06	L-Shaped Hexagonal Wrench (0.89 mm)	Guide roller ass'y replacement
J-5	9-911-053-00	Thickness Gauge	Guide roller ass'y replacement
J-6	H-7099-052-H	Alignment Tape, JVC-MH-2 (PAL)	Switching position adjustment
J-7	8-192-603-96	Alignment Tape, KRV-39PF	Audio alignment
J-8	Pending	Alignment Tape, KRV-45HPS (S-VHS)	Tape run alignment Video alignment
J-9	Pending	Alignment Tape, KRV-45PS (VHS)	Audio alignment Video alignment
J-10	8-192-602-48	Alignment Tape, KRV-4821PSA (PAL)	X Value adjustment, Tracking adjustment Audio Head adjustment
J-11	8-896-024-94	Reference Tape (Blank Tape), GR-120KG	Video and Audio alignment (VHS format only)
J-12	J-6380-710-A	X Value Adjustment Tool	X Value adjustment
J-13	H-7099-035-H	Torque Gauge Adaptor	S/T Reel table winding torque check
J-14	H-7099-039-H	Torque Gauge	
J-15	J-6380-040-A	RG Reference Pin (1)	Drive gear replacement
J-16	J-6380-050-A	RG Reference Pin (2)	
J-17	J-6380-080-A	Reference Plate	Reel table and tape guide height adj. Audio head azimuth and zenith adj.
J-18	J-6380-090-A	Reel Table Height Adj. Tool	Reel table height adjustment
J-19	J-6380-700-A	Master Block	Tape guide height adjustment Audio head azimuth and zenith adj.
J-20	J-6380-550-A	Master Block	Tape guide height adjustment
J-21	J-6080-840-A	Small Mirror	Tape run alignment
J-22	Standard Products	Tentelometer, T2-H7-UMC	Tape tension adjustment
J-23	Standard Products	Head Degausser	Head degauss
J-24 J-25	J-6082-044-A or J-6080-811-A	Tape Guide Adjustment Screwdriver	Tape guide height adjustment
J-26	7-700-751-02	Box Screwdriver (width 5.5 mm)	Tape run adjustment
J-27	J-6090-014-A or Standard Products	MOLYKOTE Grease EM-30LG MOLYKOTE Grease EM-30L (DOW CORNING Corp.)	Greasing
J-28	J-6381-380-A	S-BNC Video Cable	Video alignment
J-29	J-6381-370-A	RP Extension Tool	Video and Audio alignment
J-30	J-6381-910-A	Y/C Delay Adjustment Tool	Video alignment

J-1



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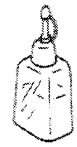
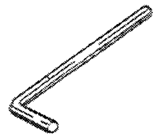


J-3, J-4



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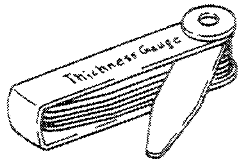
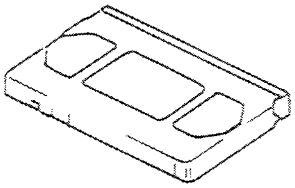

Thickness Gauge

J-6, J-7, J-8, J9, J-10, J-11



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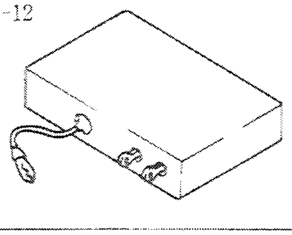

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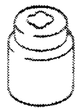

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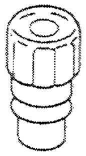

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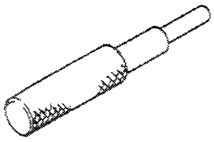

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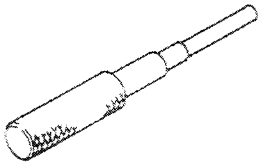

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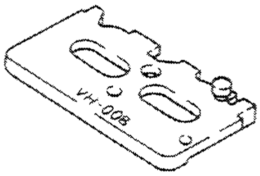

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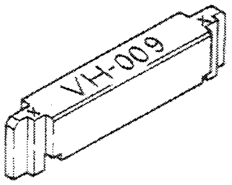

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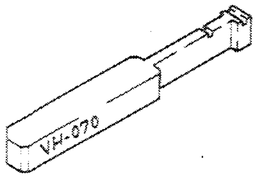

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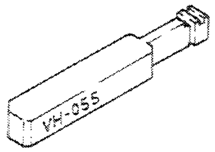

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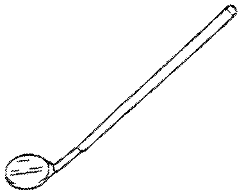

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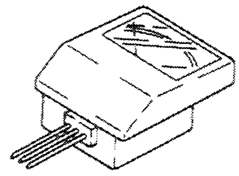

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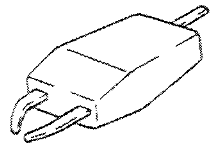

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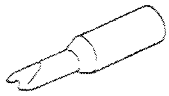

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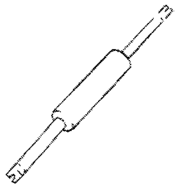

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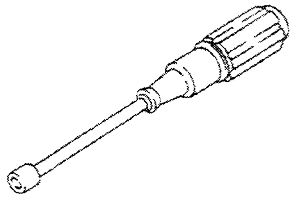

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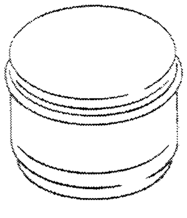

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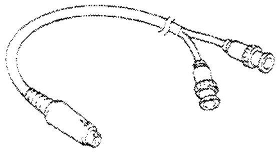
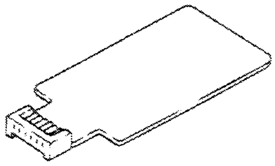
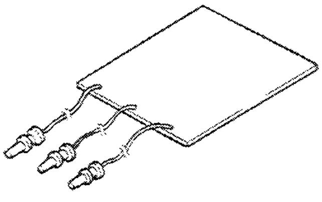


J-29



J-30



2-14. SPARE PARTS

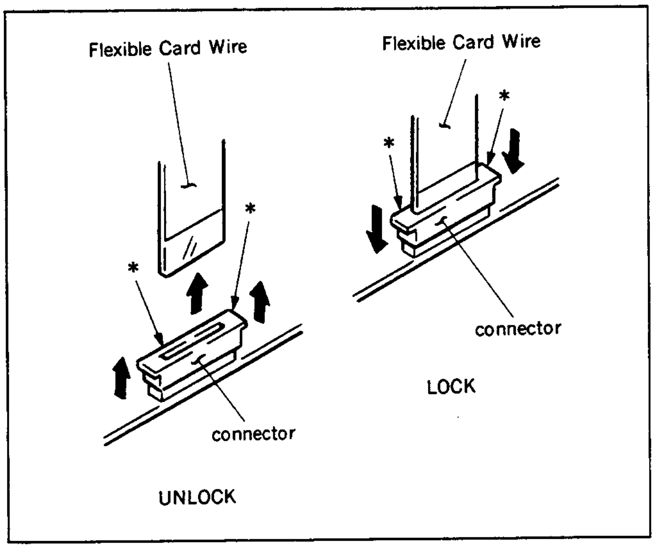
2-14-1. Spare Parts

(1) The ⚠ -marked components are critical to safety. Replace only with the same components as specified.
(2) Spare parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to the use of improved parts and/or to engineering changes or standardization of genuine parts. This manual's spare parts list indicate the part numbers of the standardized genuine parts in use at present. Regarding parts in our engineering department, refer to Sony service bulletins and service manual supplements.
(3) The parts marked with s in the SP column of spare parts list are normally stocked for replacement purposes. The parts marked with o in the SP column are not normally required for routine service work. Orders for parts marked with **o** will be processed, but allow for additional delivery time.

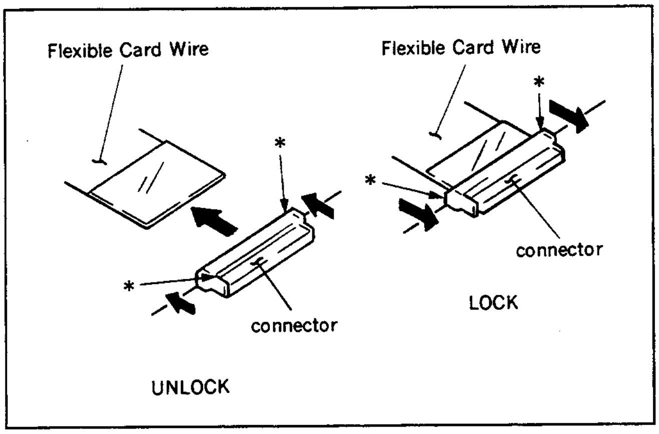
2-14-2. Replacement of Flexible Card Wires (20P, 26P, 28P)

20P flexible card wire is used on between the SS-49A board and the VM-12P board. 26P flexible card wire is used on between the CR-39 board and the VO-37A board. 28P flexible card wire is used on between the DR-176 board and the SS-49A board.
When handling a flexible card wire, be very careful not to bend it because this will markedly reduce its life.

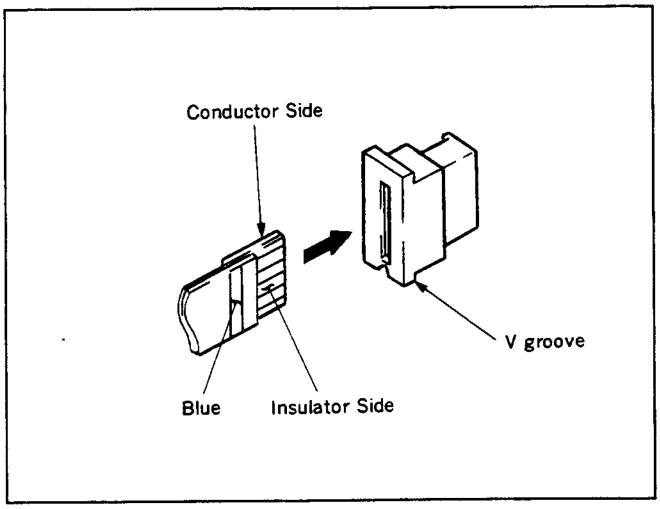
<Straight Type>
Disconnecting procedure
Pull up the * marked portions of connector, and pull out the flexible card wire from the connector.
Installing procedure
Install the flexible card wire as far as it will go (up the line indicated on the flexible card wire) and push down the * marked portions of connector.



<Angle Type>
Disconnecting procedure
Slide the * marked portions of connector in the direction of the arrow, and then pull out the flexible card wire from the connector.
Installing procedure
Insert the flexible card wire so that is conductor side is facing the printed circuit board, and insert it as far as it will go (up to the line indicated on the flexible card wire). Then slide it in the opposite direction of the arrow to lock.



Note : The flexible card wire consists of conductor side and insulator side. The flexible card wire must be inserted with the conductor side facing the correct way. If it is not the circuit will not work.



2-14-3. Replacement of Secondary Fuse

Power fuse is mounted on the AC-136 board. If the fuse has blown first remedy cause of trouble, replace the fuse.

1. Remove the top panel. (Refer to Sec.2-1)
2. Remove the fuse cover on the AC-136 board, and replace the fuse.

SECTION 3
PERIODIC CHECK AND MAINTENANCE

It is recommended that you carry out the following periodic checks and maintenance in order to obtain good performance and ensure a long life for the unit and tape. Use the hours-meter value displayed on the front panel as a guide for determining the check timing.

3-1. MAINTENANCE AFTER REPAIRS

Carry out the following maintenance after repair without regard to the operating hours of the unit.

(1) Cleaning Rotary Upper Drum
Press a cleaning cloth moistened with cleaning fluid lightly against Rotary Upper Drum and turn the Rotary Upper Drum slowly counterclockwise by means of a hand.

Note : Never turn the Drum by means of the unit is switched. Never turn it clockwise by means of a hand. If cleaning head chip, never move the cleaning cloth in vertical direction. You damage the head chip.

(2) Cleaning the tape run system (See drawing as shown below.)
Clean the tape run system (guides TG-1 to TG-9, RVS guide, F•R guide, capstan shaft, pinch roller, audio head, and FE head) with a cleaning piece moistened with cleaning fluid.

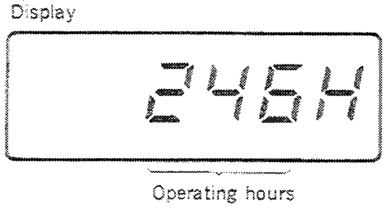
(3) Cleaning the drive system
Clean the surface of the reel table with a cleaning piece moistened with cleaning fluid.

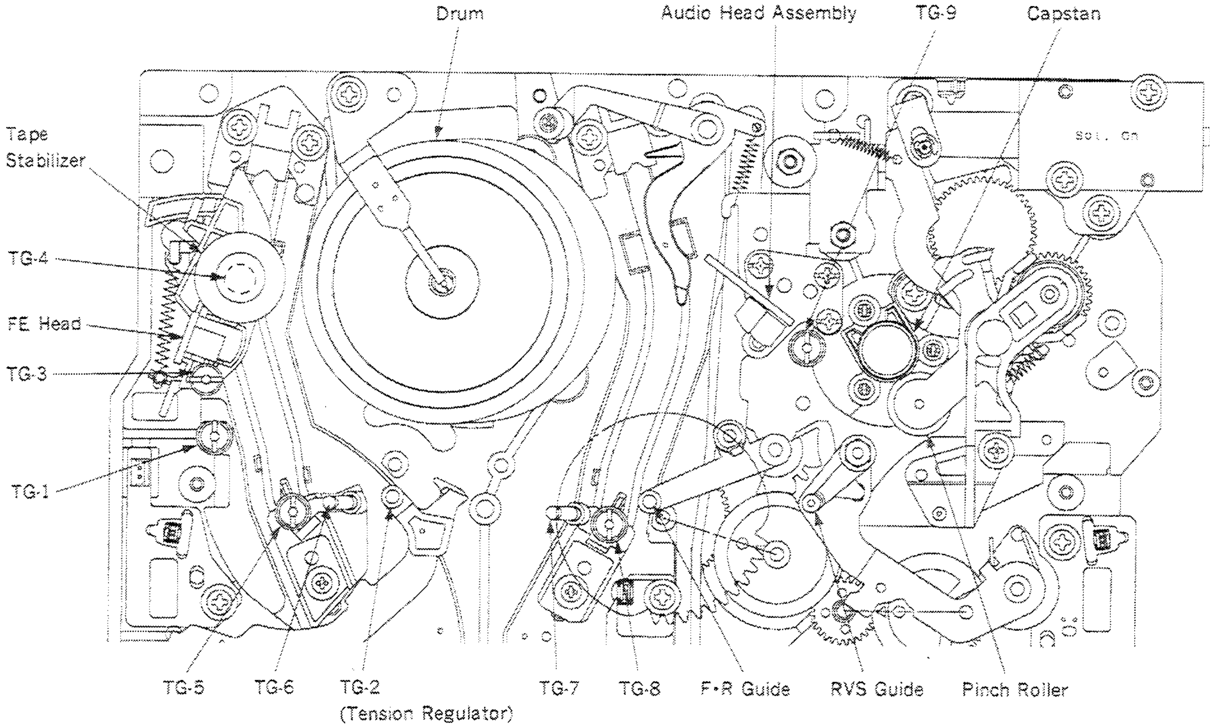
3-2. HOURS METER

The front panel display of this VTR can display the accumulated operating hours of the video heads.

● Procedure of displaying hoursmeter

1) Set the CTL/MENU switch of front panel to CTL.
2) Set the PROGRAM switch of front panel to B⬭A.
3) Keep the RESET button of front panel depressed for ammount 2 seconds.


Display
246H
Operating hours


Drum
Audio Head Assembly
TG-9
Capstan
Tape Stabilizer
TG-4
FE Head
TG-3
TG-1
SOL. ON
TG-5
TG-6
TG-2
(Tension Regulator)
TG-7
TG-8
F•R Guide
RVS Guide
Pinch Roller

3-3. PERIODIC CHECK

Carry out periodic checks and maintenance according to operating hours of the unit.

○ : Cleaning ◆ : Replacement ◇ : Checking □ : Greasing

Item			Hours of use (H) : Hour of Drum Rotation										Reference Section
	Part Name	Part No.	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Run System	Tape Run surface	—	○	○	○	○	○	○	○	○	○	○	—
	(Note 1) Pinch Roller Block Ass'y	A-6750-279-C	○	○	○	◆/□	○	○	○	◆/□	○	○	4-12
	Audio Head Ass'y	A-6736-092-A	○	○	○	○	○	○	○	◆	○	○	4-10
	Guide Roller Ass'y	X-3165-337-1								◆			4-25,4-27
	Shaft Ground Ass'y	X-3165-584-1								◆			4-4
	FE Head	1-543-695-11	○	○	○	○	○	○	○	◆	○	○	4-8
	Capstan Motor (SCV-0401A)	8-835-480-02	○	○	○	○	○	○	○	◆	○	○	4-30
	Upper Drum Ass'y (DZR-41-R)	8-848-579-02	○	◆	○	◆	○	◆	○		○	◆	4-4
	Drum Ass'y (DZH-41A-R)	8-848-578-12	○	○	○	○	○	○	○	◆	○	○	4-5
Drive System	Brake Arm (S) Ass'y	X-3165-330-3								◆			4-18
	Brake Arm (T) Ass'y	X-3165-331-2								◆			4-18
	Reel Table Ass'y	X-3165-345-1				○				○			4-17
	LDB Arm Ass'y	X-3166-511-1								◆			4-32
	Cleaning Roller Ass'y	X-3743-515-4				◆				◆			4-3
	Reel Moter (SRV-0201A)	8-835-432-01								◆			4-19
	(Note 1) Loading Gear (Right) Ass'y	A-6750-281-A				□				□			4-22
	(Note 1) Worm Gear (Cam Motor Ass'y)	3-733-395-01				□				□			3-5
	(Note 1) Worm Gear (Cassette Compartment)	3-736-100-01				□				□			3-5
	(Note 1) Shuttle Slide Surface	—				□				□			3-5
Performance Check	Abnormal-noise	—	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	—
	S side Tape Tension Measurement	—		◇		◇		◇		◇		◇	5-2,6-2
	Reel Table torque Measurement	—				◇				◇			5-1

Note 1 : Grease the VTR according to sub-section 3-5.

Note 2 : The period shown in the table is not a guarantee value. The parts replacement period differs depending on the environment in which the VTR is used, so take the operating environment into consideration when drawing up a maintenance and check plan.

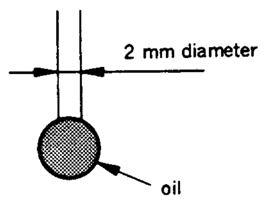
Note 3 : Be sure to clean the tape run surface after repairing it.

3-4. OILING

Oiling is described in 「SECTION 4. REPLACEMENT OF MAJOR PARTS」 for the applicable parts.

(1) Sony oil

- Be sure to use Sony oil. (If another brand of oil is used, the viscosity will be different, leading to trouble.)
  Sony oil : Sony part No. 7-661-018-18
- Be sure that the Sony oil used to lubricate the bearings is free of dirt and other foreign matter. (If the oil contains dirt, the bearings are liable to seize and also wear will be accelerated.)
- One drop of oil means a drop on the end of a rod of 2 mm diameter (see figure).



3-5. GREASING

(1) Periodically grease the following parts.
- The face that slides against the cam of the pinch roller block ass'y (Fig. 1)
- The face that slides against the loading gear (right) ass'y (Fig. 2)
- The face that slides against the shuttle (left)/(right) ass'y (Fig. 3)
- Cam motor ass'y worm gear (Fig. 4)
- Cassette compartment worm gear (Fig. 5)

(2) Greasing
- Be sure to use the specified grease.

MOLYKOTE grease EM-30LG (Color : green) :
Sony part No. J-6090-014-A

or

MOLYKOTE grease EM-30L (Color : Colorless) :
DOW CORNING Corp.

Apply a small quantity of grease to the areas marked in the figure (shaded areas and other areas indicated by the arrows).

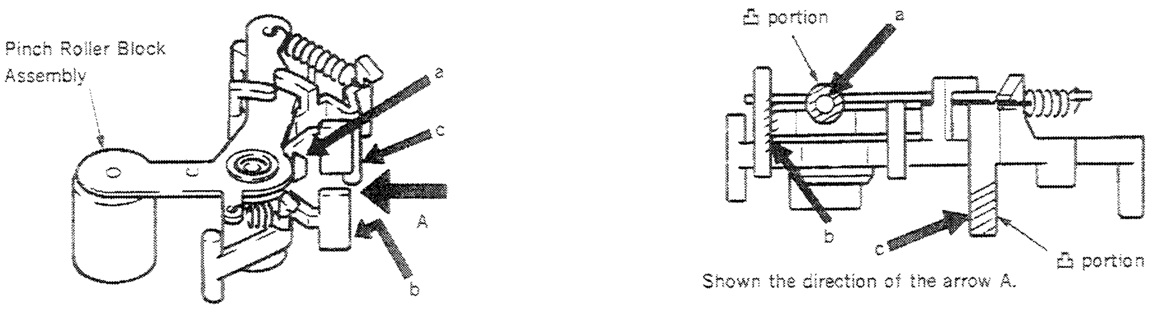

Pinch Roller Block Assembly
a
c
A
b
凸 portion
a
b
c
凸 portion
Shown the direction of the arrow A.

Fig. 1

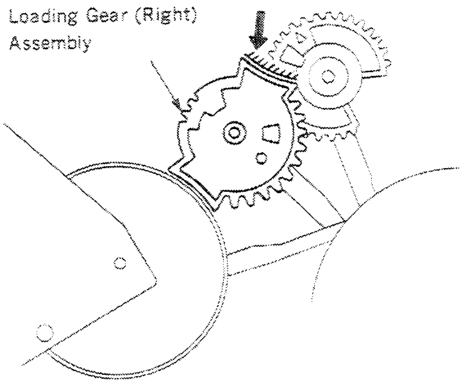

Loading Gear (Right) Assembly

Fig. 2

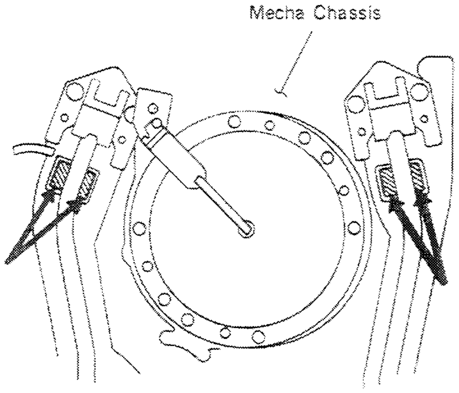

Mecha Chassis

Fig. 3

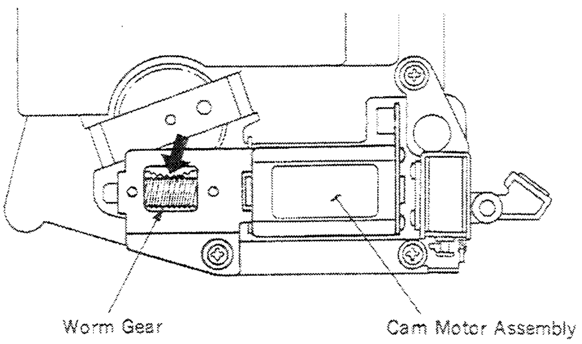

Worm Gear
Cam Motor Assembly

Fig. 4

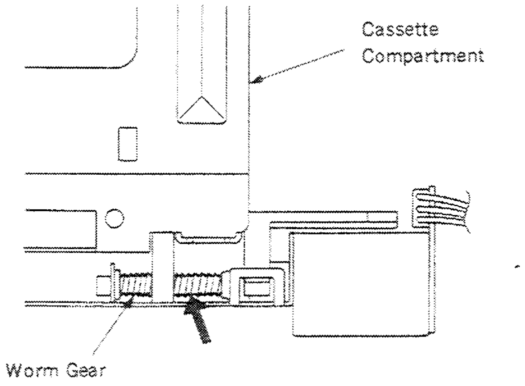

Cassette Compartment
Worm Gear

Fig. 5

SECTION 4
REPLACEMENT OF MAJOR PARTS

- Refer to Section 2 for details of removing the externals and the printed circuit boards.
- Re-install the various parts in the opposite sequence to removal, while referring to "Precautions for Installation".

4-1. PREPARATIONS FOR REPLACING PARTS

- Do not load or thread a cassette when the VTR is inverted.

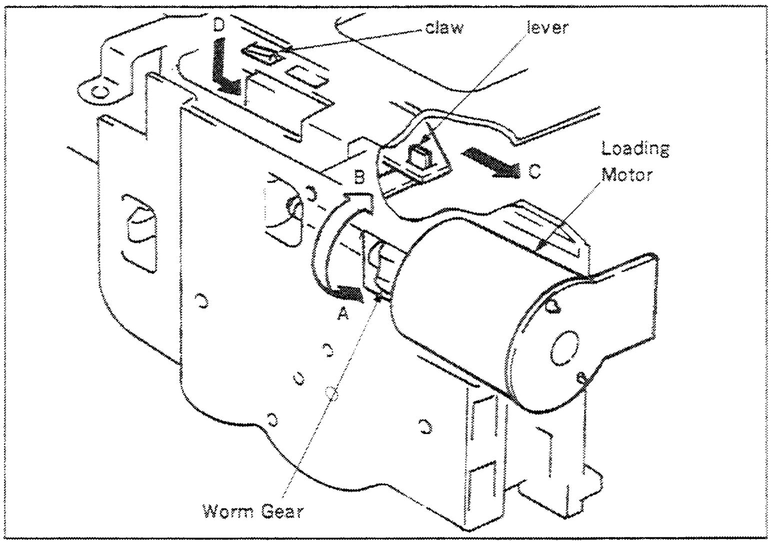
4-1-1. Method of Loading and Unloading the Cassette Compartment when the Power is OFF

[Loading]

- Push the lever in the direction of arrow C and release the claw (direction of arrow D), then rotate the worm gear in the direction of arrow B with the fingers until loading is completed.
  (When a cassette tape is loaded in the cassette compartment, the claw will automatically release.)

[Unloading]

- Rotate the worm gear in the direction of arrow A with the fingers until unloading is completed.


D
claw
lever
C
Loading Motor
B
A
Worm Gear

4-1-2. Method of Threading and Unthreading when the Power is OFF

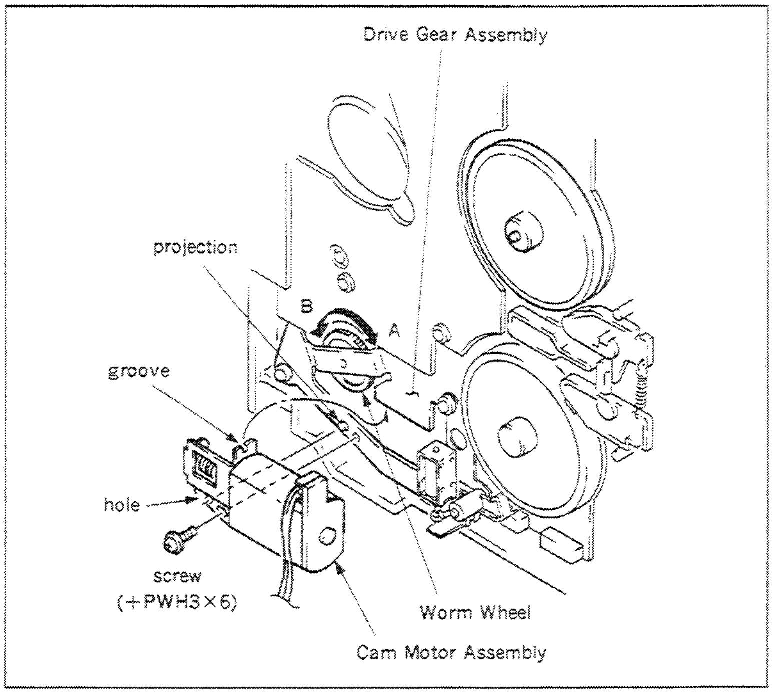
(1) Remove the screws, then remove the cam motor ass'y from the drive gear ass'y.

[Threading]

- Rotate the worm wheel with the fingers in the direction of arrow A until threading is completed.

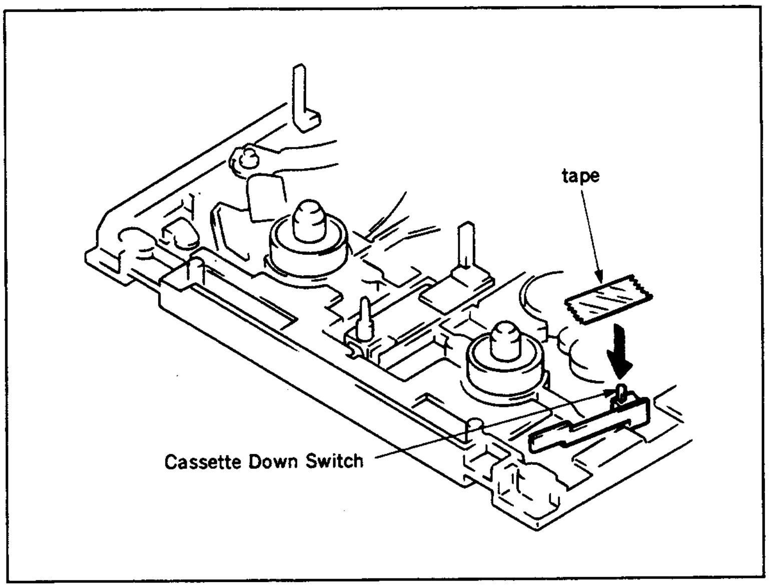
[Unthreading]

- Rotate the worm wheel with the fingers in the direction of arrow B until unthreading is completed.


Drive Gear Assembly
projection
B
A
groove
hole
screw
(+PWH3×6)
Worm Wheel
Cam Motor Assembly

4-1-3. Method of Operating the VTR without a Cassette Compartment or Cassette Tape

(1) Remove the cassette compartment according to sub-section 2-2.
(2) Turn ON No. 8 switch of DIP switch S101/SS board (H-9). (This is to neutralize the tape top/end sensor function)
(3) Push down the CASSETTE DOWN switch with tape, etc.
(4) Turn the POWER switch ON.



In this condition, the VTR can be also operated from the remote controller (SVRM-100, RM-V200, RM-V100, etc.)

Note: Be sure to turn OFF No. 8 switch of DIP switch S101 after completion of operation.

[Operating the VTR with the cassette compartment removed and a cassette tape loaded]

- Be sure to turn OFF No. 8 switch of DIP switch S101.
  (If the DIP switch is turned ON, the tape will not stop at the tape top/end, resulting in possible damage to the head tip and deformation of the tape guide.)

4-1-4. How to get the best Engaging Phase of Gears when Replacing.

A hole and/or a mark is added on each gear in this mechanism deck so that the engaging phases of the gears are easy to get when assembling. When replacing gear, install it as shown below, also refer the figures 1 and 2. (The replacement should be performed on the STOP mode.)

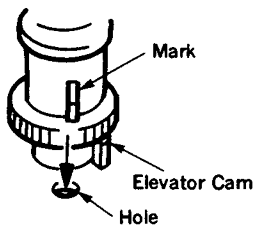
①	 Mark Elevator Cam Hole Match the mark of the elevator cam and the hole of the chassis. (Ref. 4-13)
②	Match the holes of the pressure cam gear and the chassis. (Ref. 4-13)
③	Match the holes of RVS cam gear and the chassis. (Ref. 4-14)
④	Match the holes of FR drive gear and the mode gear (2). (Ref. 4-16)

Figure of mechanism: STOP mode without the cassette compartment.

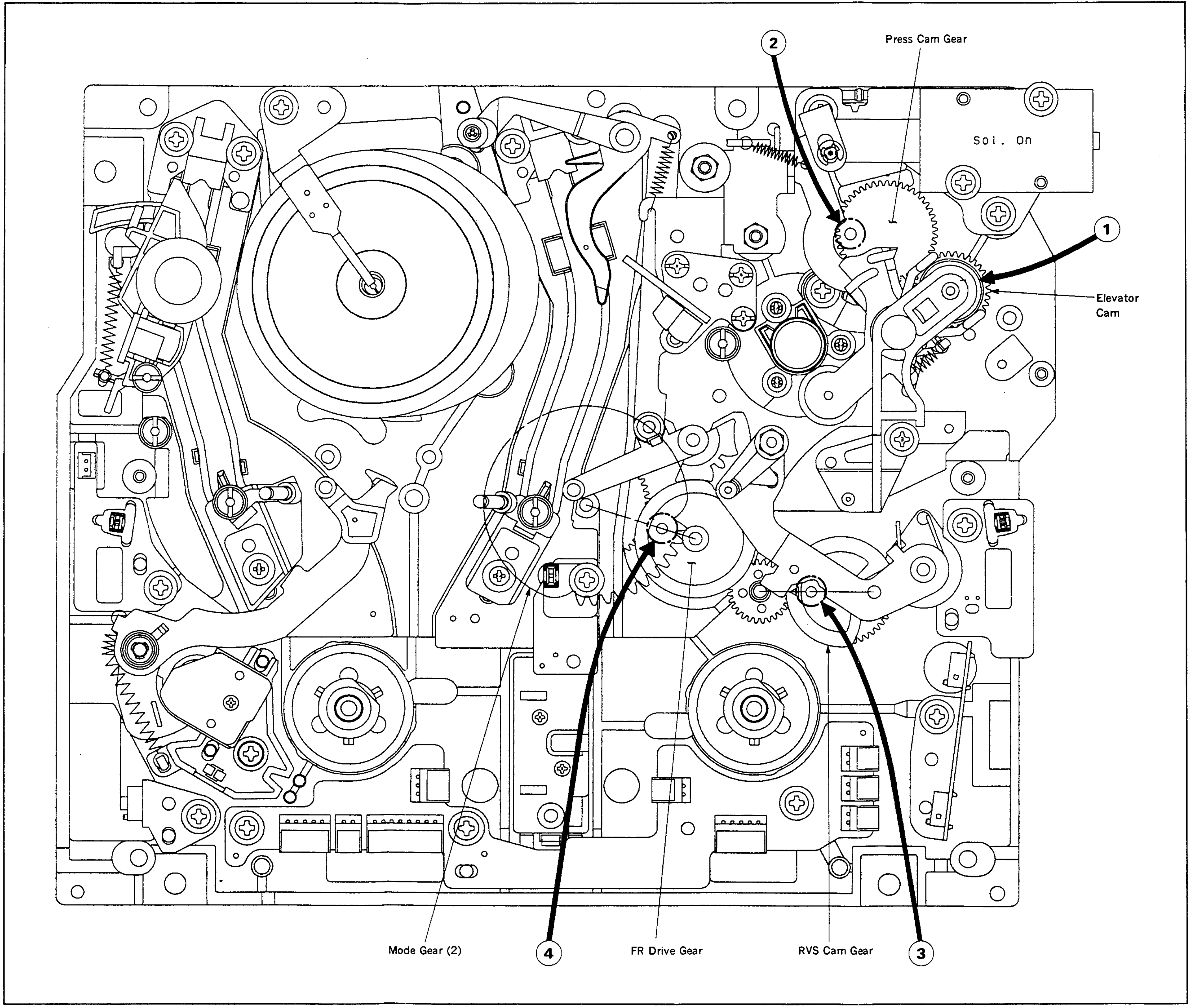

②
Press Cam Gear
Sol. On
①
Elevator Cam
Mode Gear (2)
④
FR Drive Gear
RVS Cam Gear
③

Fig. 1 Top View

Figure of mechanism : STOP mode

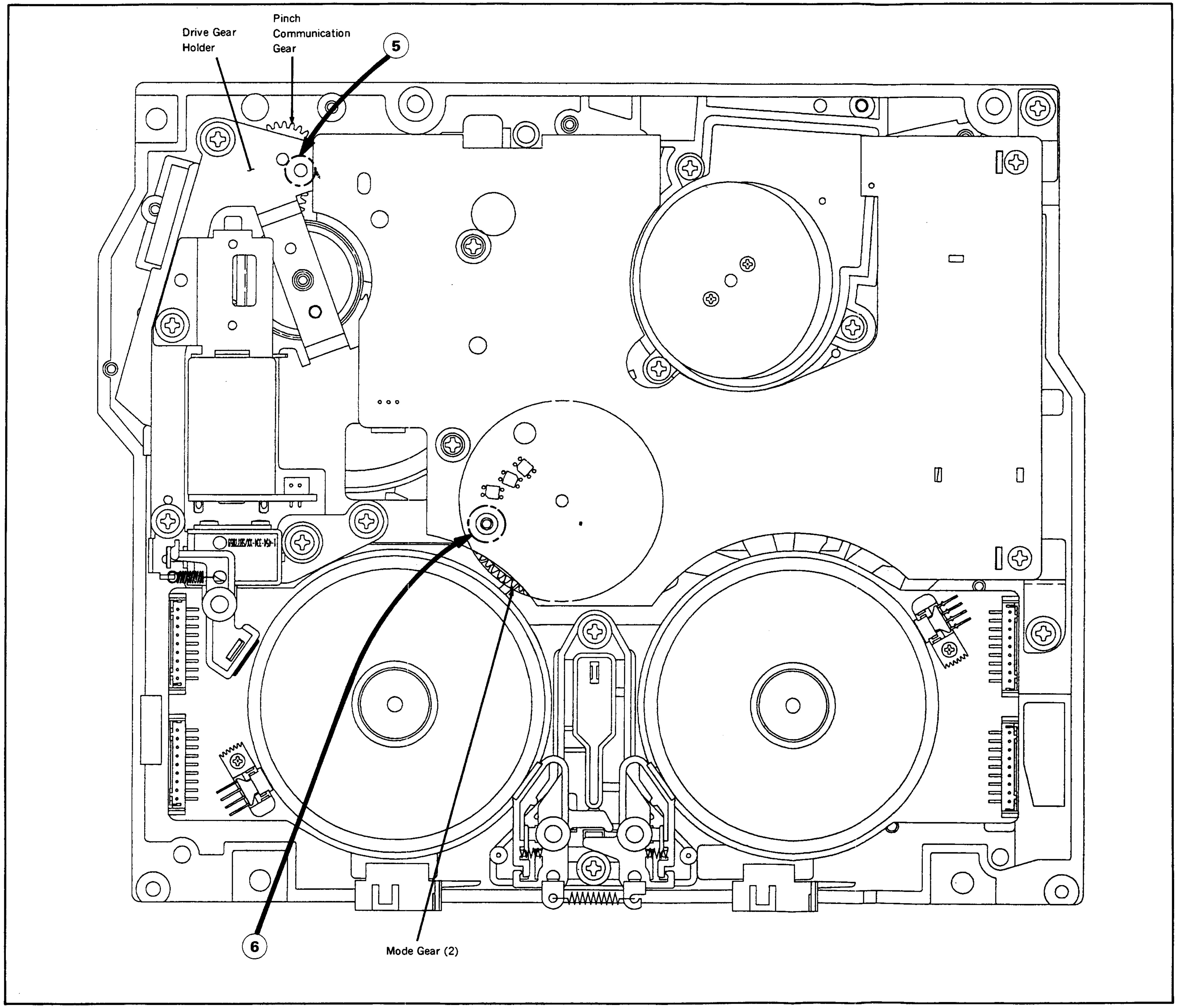

Drive Gear Holder
Pinch Communication Gear
5
6
Mode Gear (2)

Fig. 2 Bottom View

⑤	Match the holes of the pinch communication gear and the drive gear holder. (Ref. 4-20)
⑥	Match the holes of the mode gear (2) and the drive gear holder. (Ref. 4-20)

4-2. CASSETTE COMPARTMENT (FL ASS'Y) REPLACEMENT

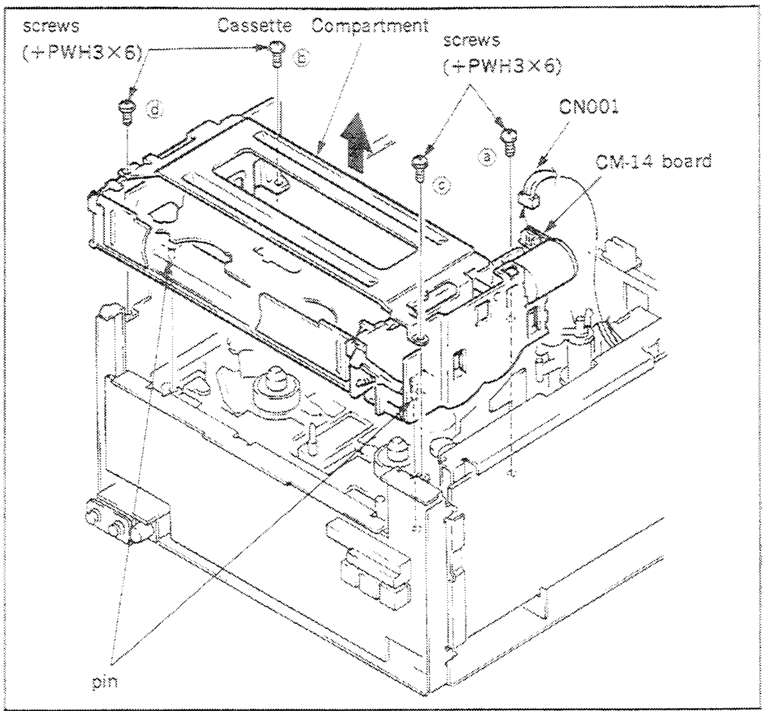
(1) Disconnect connector CN001 from the CM-14 board.

(2) Remove four screws, and remove the cassette compartment (FL ass'y) in the direction of the arrow.

Precautions for installation

①Align two pins of the cassette compartment with the holes in the base plate.

②Tighten the screws in the sequence ⓐ to ⓓ.


screws
(+PWH3×6)
Cassette Compartment
screws
(+PWH3×6)
ⓑ
ⓓ
ⓒ
ⓐ
CN001
CM-14 board
pin

4-2-1. Prevention Lever Replacement

(1) Remove the spring.

(2) Remove the claw, and move the prevention lever in the direction of arrow A.

(3) Remove the prevention lever in the direction of arrow B.

Precautions for installation

①The shaft of the prevention lever must enter the groove in the drive arm (left). (Fig. 2)

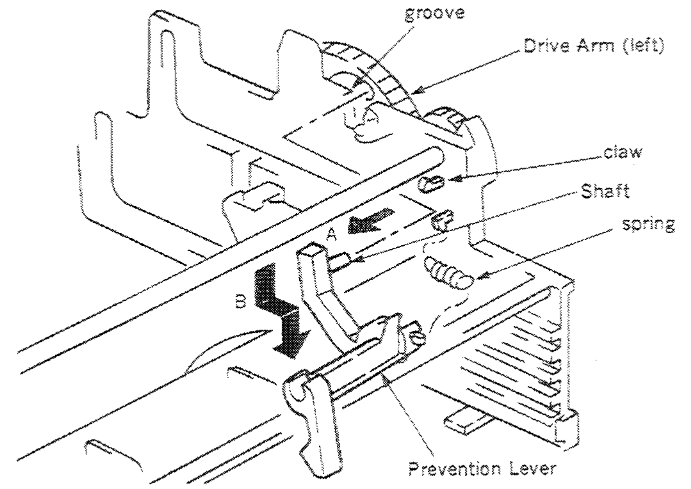

groove
Drive Arm (left)
claw
Shaft
spring
A
B
Prevention Lever

Fig. 1

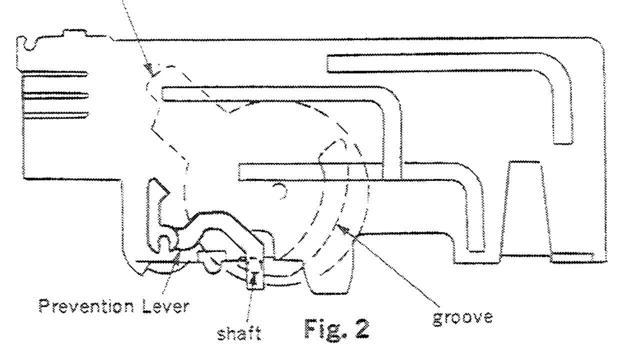

Drive Arm (left)
Prevention Lever
shaft
groove

Fig. 2

4-2-2. Loading Motor, Worm Gear (FL), Worm Wheel (FL) and Worm Retainer Replacement

(1) Remove four claws, then remove the gear cover ass'y. (Fig. 1)
(2) Remove the stop washer 3, then pull out the worm wheel (FL). (Fig. 2)
(3) Remove two screws, then remove the loading motor. (Fig. 2)
(4) Remove the worm gear (FL) and the worm retainer. (Fig. 2)

Precautions for installation

①To install the gear cover ass'y, obtain a shaft of 2 mm diameter and length of at least 30 mm. Pass the shaft through the holes in the gear cover ass'y, worm wheel (FL), drive arm (right) ass'y and right side plate, and engage the gear cover ass'y with the claw.

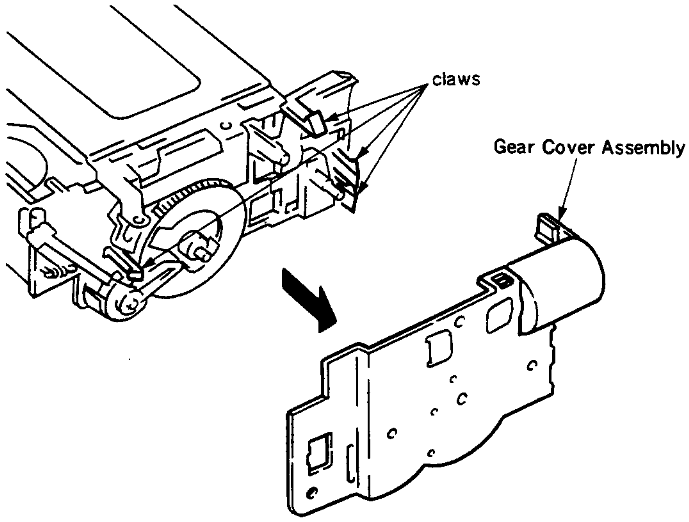

claws
Gear Cover Assembly

Fig. 1

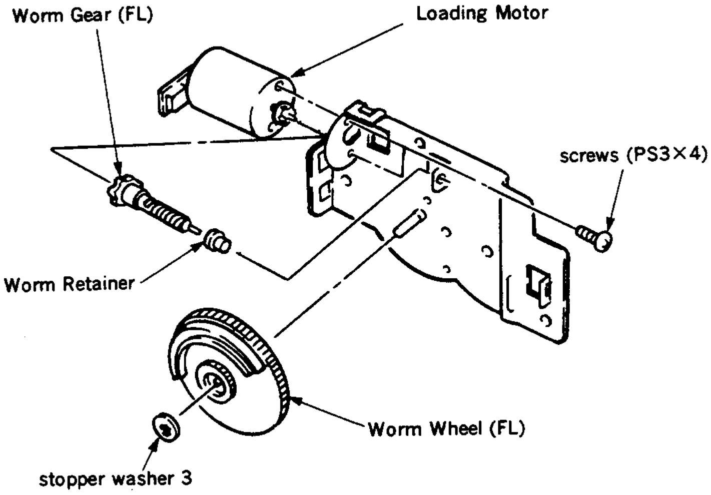

Worm Gear (FL)
Loading Motor
screws (PS3X4)
Worm Retainer
Worm Wheel (FL)
stopper washer 3

Fig. 2

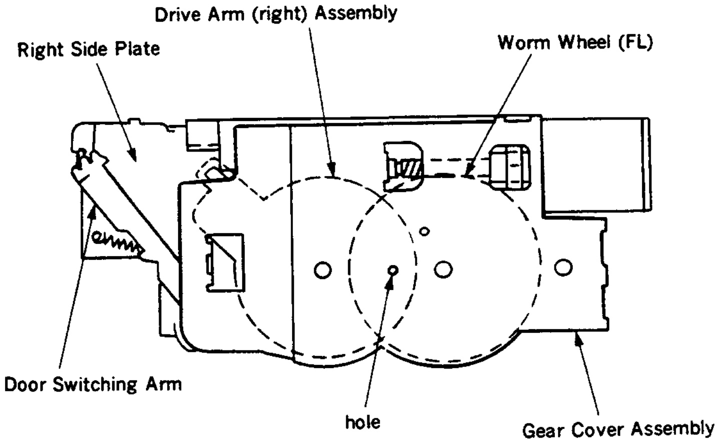
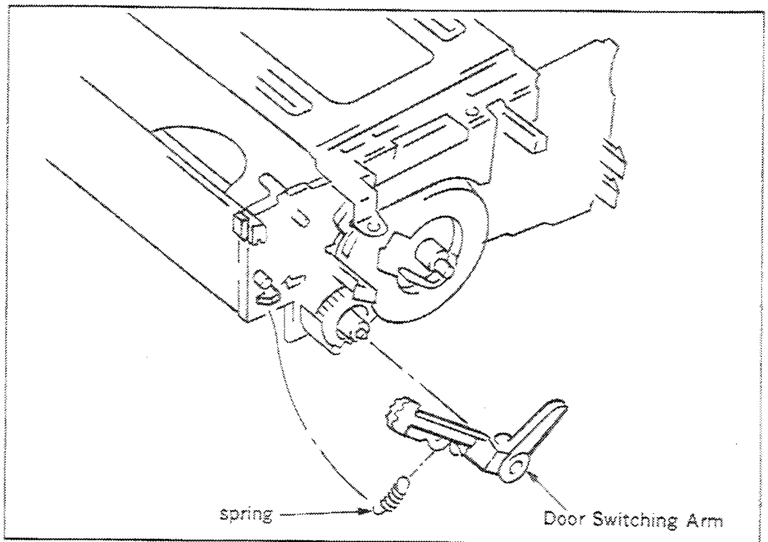

Drive Arm (right) Assembly
Right Side Plate
Worm Wheel (FL)
Door Switching Arm
hole
Gear Cover Assembly

Fig. 3

4-2-3. Door Switching Arm Replacement

(1) Remove the spring.
(2) Pull out the door switching arm.


spring
Door Switching Arm

4-3. BC ROLLER ASS'Y REPLACEMENT

(1) Remove the spring from the notch in the ACE head base.
(2) Remove the stop washer (4 mm dia.), then remove the BC roller ass'y. (Fig. 1)

Precautions for installation

①Ensure that the opening of the hook is uppermost. (Fig. 2)
②Take care not to scratch the drum.
③Install the BC roller ass'y in such a way that the extremity enters the part of the shuttle holder indicated by the arrow in Fig. 2.

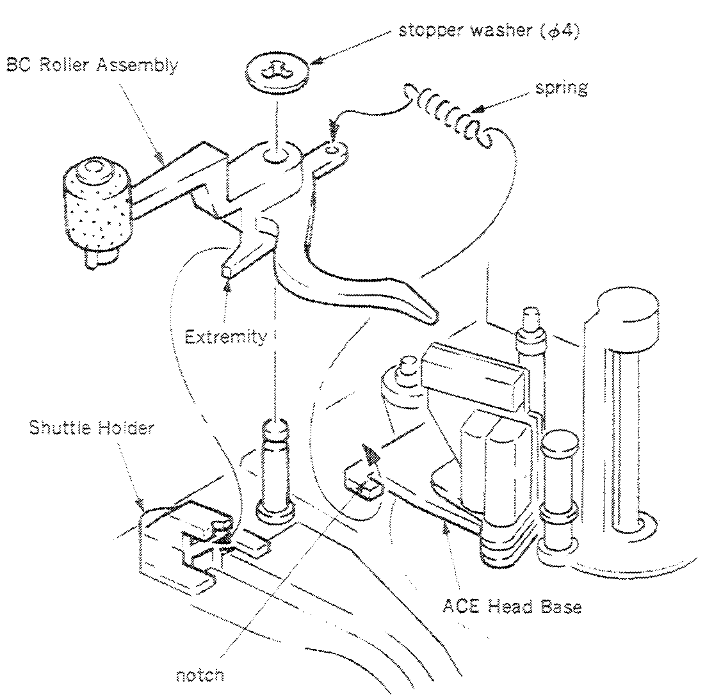

stopper washer (φ4)
BC Roller Assembly
spring
Extremity
Shuttle Holder
ACE Head Base
notch

Fig. 1

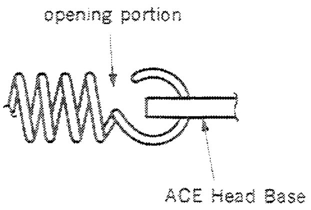

opening portion
ACE Head Base

Fig. 2

4-4. UPPER DRUM ASS'Y REPLACEMENT

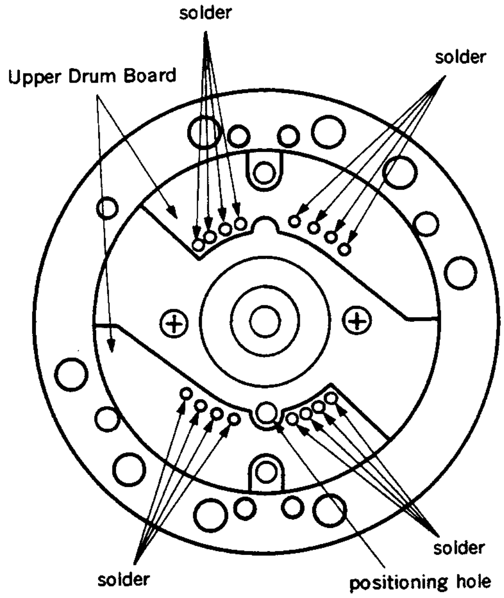
Tools :
Alignment tape (KRV-45HPS)
Alignment tape (KRV-4821PSA)
Alignment tape (JVC-MH-2)
X value adjustment tool (J-6380-710-A)
RP extension tool (J-6381-370-A)
Box screwdriver (width 5.5 mm)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Oscilloscope
Connecting cable (See sub-section 6-9.)
S-VHS cassette tape (T-160 and T-120)

(1) Remove the screw, then remove the shaft ground ass'y.
(2) Unsolder sixteen points on the upper drum board shown in Fig. 1.
(3) Remove two screws, then remove the upper drum ass'y.

Precautions for installation

①Do not touch the head tip and the contact of the shaft ground ass'y with the fingers or a tool.
②Clean the surface of the drum shaft that touches the contact of the shaft ground ass'y, using cleaning fluid.
③Install the contact of the shaft ground ass'y at roughly the center of the drum shaft.
④Align the locating hole of the upper drum ass'y with this of the lower drum ass'y, then install the upper drum ass'y.
⑤The tightening torque for installing the upper drum ass'y must be 590×10^{-3} N·m (6 kg·cm).

[Adjustment after replacing the upper drum ass'y]
- See next page.


solder
Upper Drum Board
solder
solder
solder
positioning hole

Upper Drum Assembly (Top View)

Fig. 1

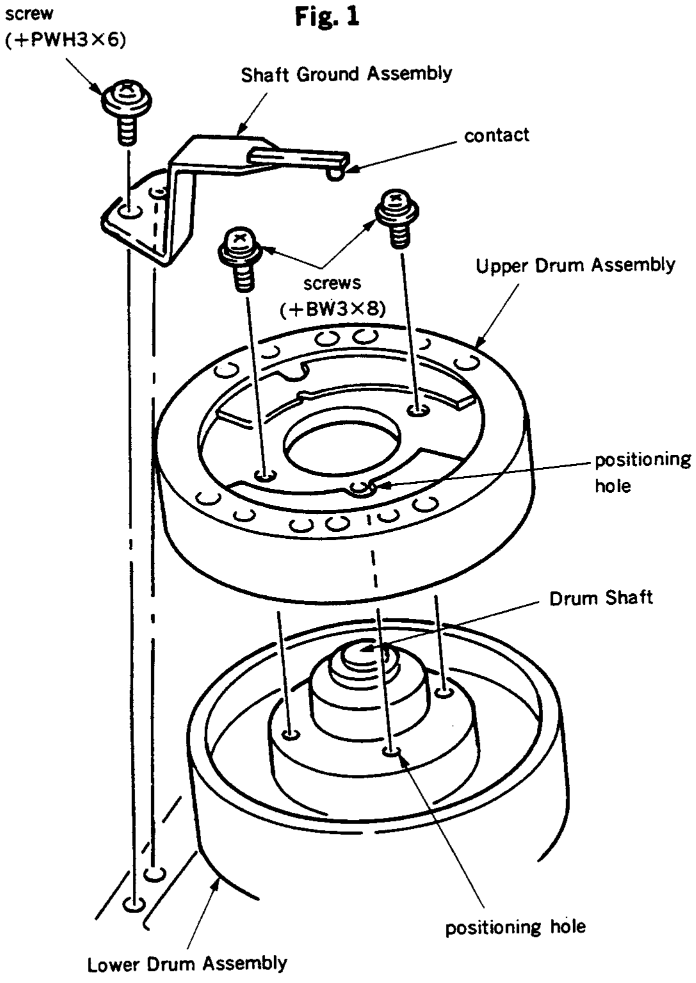
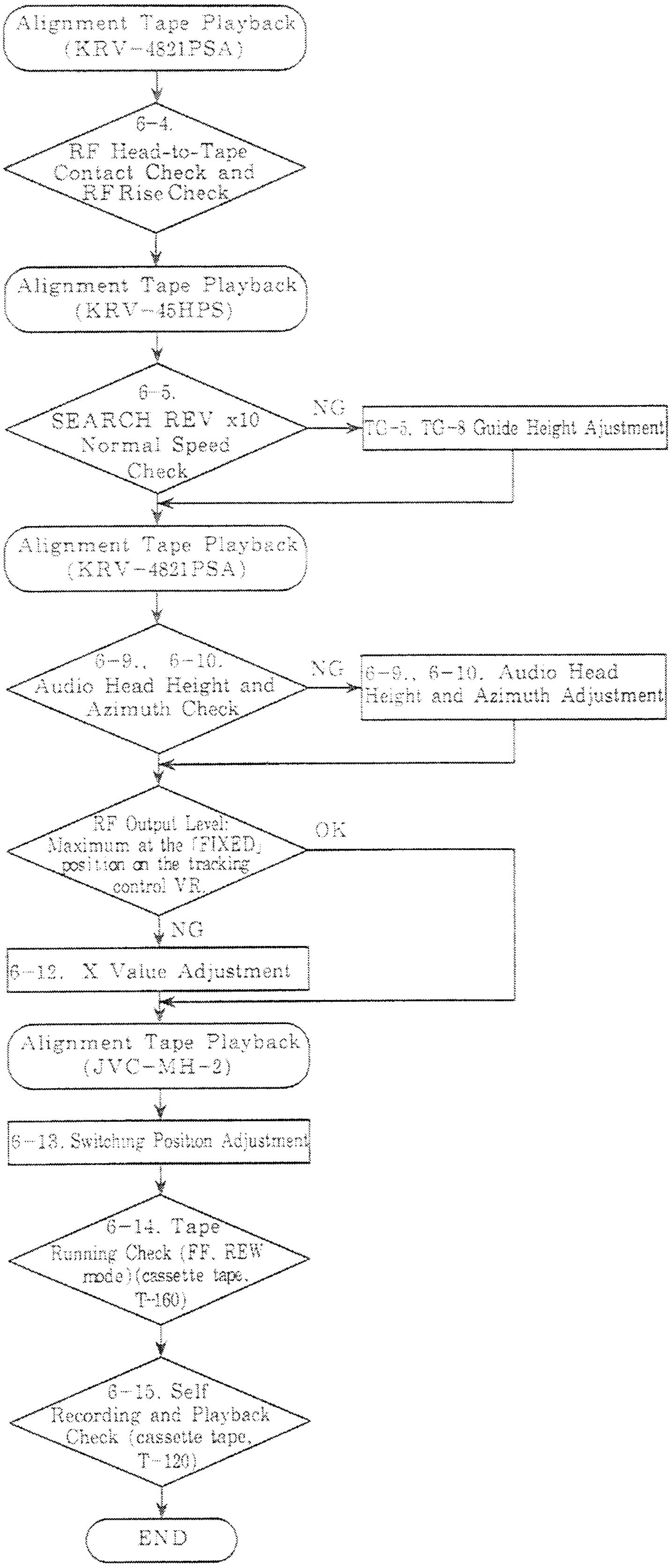

screw
(+PWH3×6)
Shaft Ground Assembly
contact
screws
(+BW3×8)
Upper Drum Assembly
positioning hole
Drum Shaft
positioning hole
Lower Drum Assembly

Fig. 2

[Adjustment after replacing the upper drum ass'y]

- Refer to Section 6, perform the Tape Run Alignments.


Alignment Tape Playback (KRV-4821PSA)
6-4. RF Head-to-Tape Contact Check and RF Rise Check
Alignment Tape Playback (KRV-45HPS)
6-5. SEARCH REV x10 Normal Speed Check
NG
TG-5, TG-8 Guide Height Ajustment
Alignment Tape Playback (KRV-4821PSA)
6-9., 6-10. Audio Head Height and Azimuth Check
NG
6-9., 6-10. Audio Head Height and Azimuth Adjustment
RF Output Level: Maximum at the [FIXED] position on the tracking control VR.
OK
NG
6-12. X Value Adjustment
Alignment Tape Playback (JVC-MH-2)
6-13. Switching Position Adjustment
6-14. Tape Running Check (FF, REW mode)(cassette tape, T-160)
6-15. Self Recording and Playback Check (cassette tape, T-120)
END

4-5. DRUM ASS'Y REPLACEMENT

Tools:

Alignment tape (KRV-45HPS)
Alignment tape (KRV-4821PSA)
Alignment tape (JVC-MH-2)
X value adjustment tool (J-6380-710-A)
RP extension tool (J-6381-370-A)
Box screwdriver (width 5.5 mm)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Oscilloscope
Connecting cable (See sub-section 6-9.)
S-VHS cassette tapes (T-160 and T-120)

(1) Remove the drum harness from the RP board. (Fig. 1)
(2) Remove the screw, then remove the shaft ground ass'y. (Fig. 2)
(3) Disconnect connector CN604 from the drum ass'y. (Fig. 2)
(4) Remove three screws, then remove the drum ass'y. (Fig. 2)

Precautions for installation

①Do not touch the head tip and the contact of the shaft ground ass'y with the fingers or a tool.

②Clean the following parts with cleaning fluid.

- The surface of the drum shaft that touches the ground contact of shaft ground assembly.
- The mounting faces of the drum ass'y and the chassis.
- The surface of the drum ass'y over which the tape travels

③Align the holes (two) in the drum ass'y with the pins (two) on the chassis, then install the drum ass'y.

④The tightening torque of the mounting screws of the drum ass'y must be 392×10^{-3} to 490×10^{-3} N•m (4 to 5 kg•cm).

⑤Connect the drum harness to CN801 of the RP board while being careful of the direction of the conductor side.

[Adjustment after Replacing the Drum Ass'y]
See sub-section 4-4. [Same as the method of performing adjustment after replacing the upper drum ass'y]

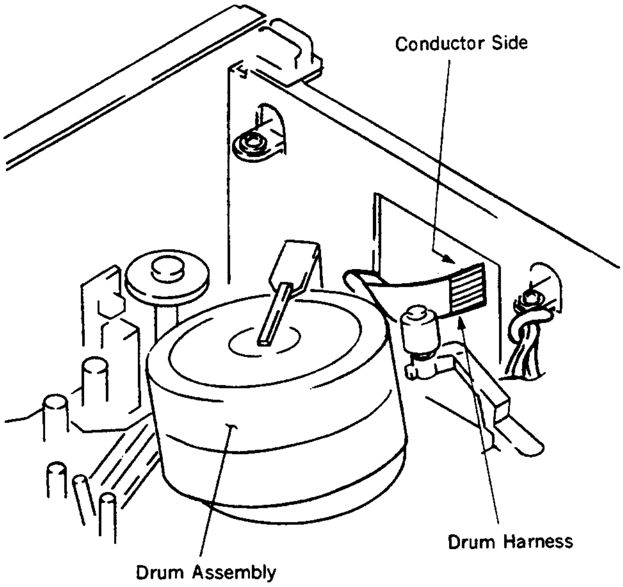


Fig. 1

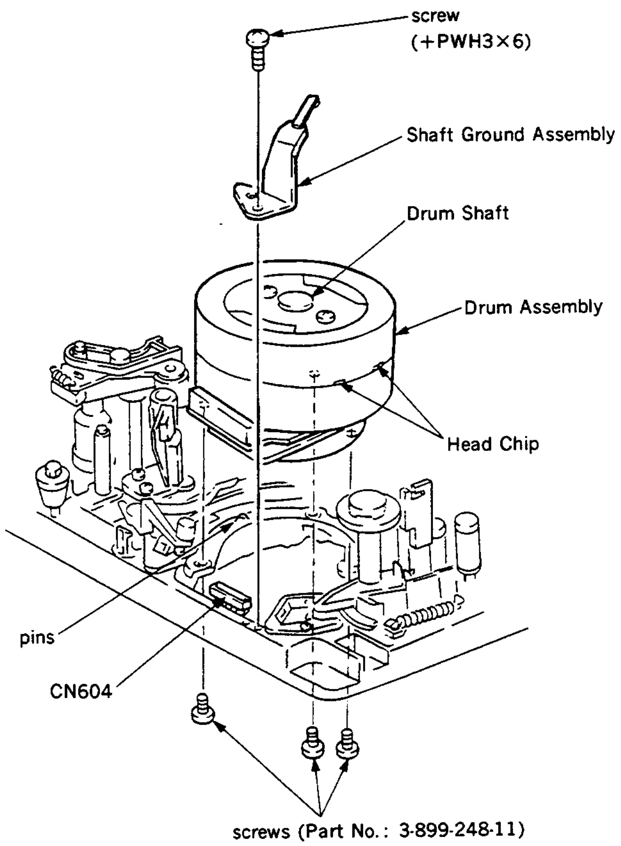


Fig. 2

4-6. TG-1 GUIDE REPLACEMENT

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89 mm)
Remote controller (SVRM-100, RM-V100, or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw by inserting the hex wrench into the hole in the chassis (left). (Fig. 1)
(3) Rotate the TG-1 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

[Installation and height adjustment]

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it against the TG-1 guide from the direction shown in the drawing, and tighten the set screw until the lower flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Set screw tightening torque : 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1 kg•cm))
(6) Turn the flange of the guide with the guide adjustment screwdriver until the required specification is satisfied. (Fig. 3)
(7) Perform tape run alignments of section 6.

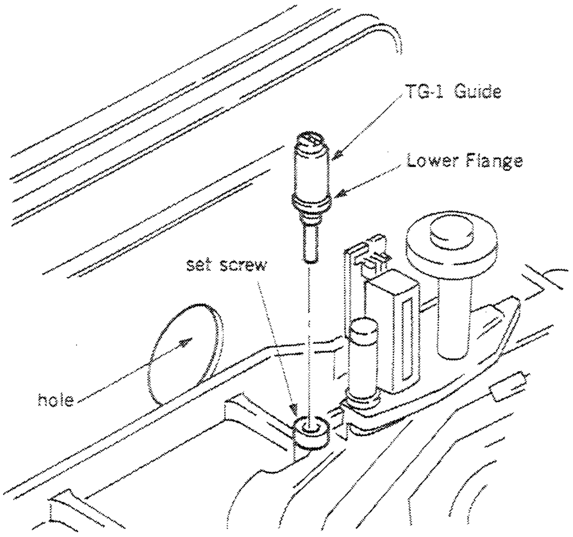

TG-1 Guide
Lower Flange
set screw
hole

Fig. 1

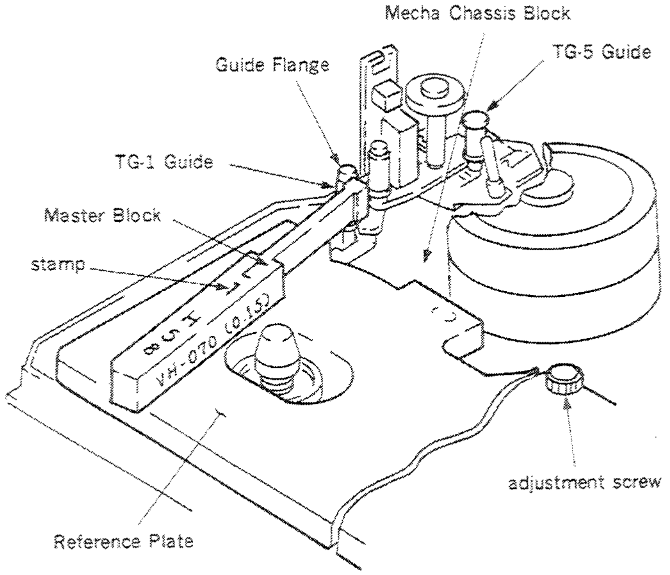
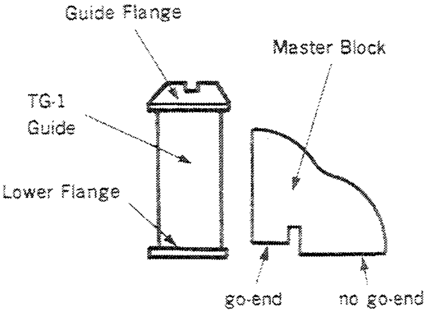

Mecha Chassis Block
Guide Flange
TG-5 Guide
TG-1 Guide
Master Block
stamp
L1
H5
8
VH-070 (0.15)
adjustment screw
Reference Plate

Fig. 2


Guide Flange
Master Block
TG-1 Guide
Lower Flange
go-end
no go-end

Spec. :
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

Fig. 3

4-7. TENSION REGULATOR ASS'Y (TG-2 GUIDE) AND STD ASS'Y REPLACEMENT

Tools :
Oscilloscope
Tentelometer (T2-H7-UMC)
Digital voltmeter
S-VHS cassette tape (T-120)
Sony oil (7-661-018-18)
Locking compound

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Disconnect connector CN657Y from the HN board.
(3) Remove the spring from the STD ass'y.
(4) Remove the stop washer 2.3 and also the screw.
(5) Remove the tension regulator ass'y and STD ass'y together.
(Take care not to lose the poly-slider-washer.)

Precautions for installation

①Clean the shaft with cleaning fluid, and apply 1/2 a drop of Sony oil. (Fig. 1)
②Insert the slit arm of the tension regulator ass'y into the slit in the STD ass'y, then install the resulting ass'y on the shaft. (Fig. 1)
③Align the U groove and longitudinal hole of the STD ass'y with bosses **a** on the chassis (Fig. 1), then install the STD ass'y in such a way that the adjustment groove comes to a point mid-way between bosses **b**. (Fig. 2)

[**Adjustment after replacement**]

Mechanical adjustment of position of tension regulator ass'y

(1) Connect the oscilloscope as follows.
CH-1 (DC range) : TP301/SS board (D-9)
(2) Turn ON No. 8 switch of DIP switch S101/SS board (H-9). (Fig. 3)
(3) Keep the cassette down switch pressed down with finger. (Fig. 3)
(4) Turn ON the POWER switch.
(5) Press the PLAY button of the unit for the threading completion mode (rotate the drum).
(6) Remove a finger from the cassette down switch.

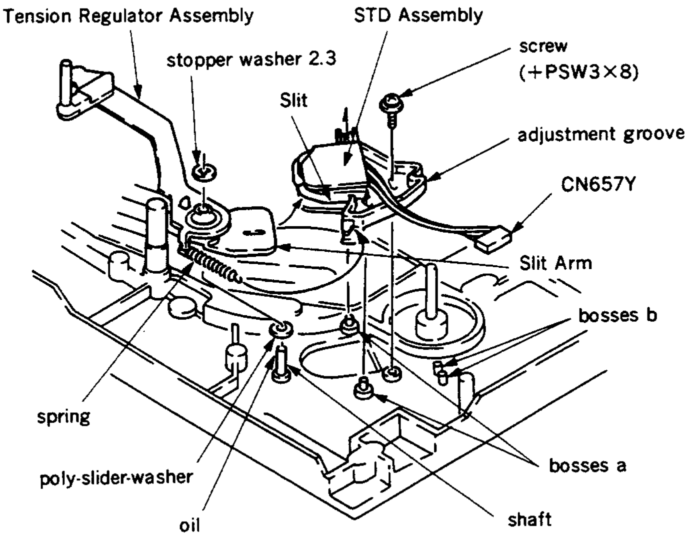

Tension Regulator Assembly
STD Assembly
stopper washer 2.3
screw
(+PSW3×8)
Slit
adjustment groove
CN657Y
Slit Arm
bosses b
spring
poly-slider-washer
oil
bosses a
shaft

Fig. 1

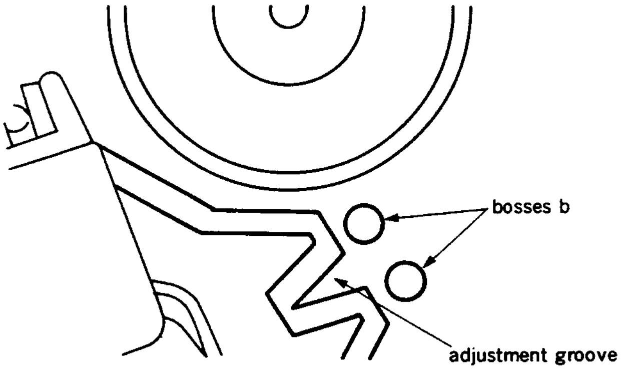

bosses b
adjustment groove

Fig. 2

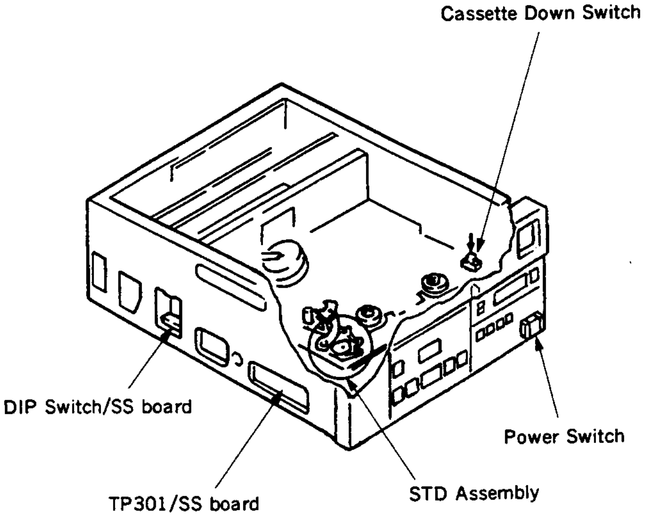

Cassette Down Switch
DIP Switch/SS board
Power Switch
TP301/SS board
STD Assembly

Fig. 3

(7) Loosen the screw of the STD ass'y by about 90°.

(8) Insert a screwdriver into the position shown in Fig. 4, then move the STD ass'y in the direction of arrows A and B, and set it to the position where the DC voltage of TP301 is minimum.

(9) Move the STD ass'y slightly in the direction of arrow C, and tighten the screw until the DC voltage of TP301 is within the specification range. (Fig. 4)

(10) Confirm that when the tension regulator ass'y is moved in the direction of the arrow D, the DC voltage of TP301 increases in direct proportion. (Fig. 5)

(11) Press the STOP button of the unit for the un-threading completion mode.

(12) Turn OFF No. 8 switch of the DIP switch.

(13) Smear the screw of the STD ass'y with locking compound. (Fig. 4)

Tape tension adjustment

(14) Perform tape tension adjustment according to sub-section 6-2.

Tape run adjustment

(15) Perform tape run alignments of section 6.

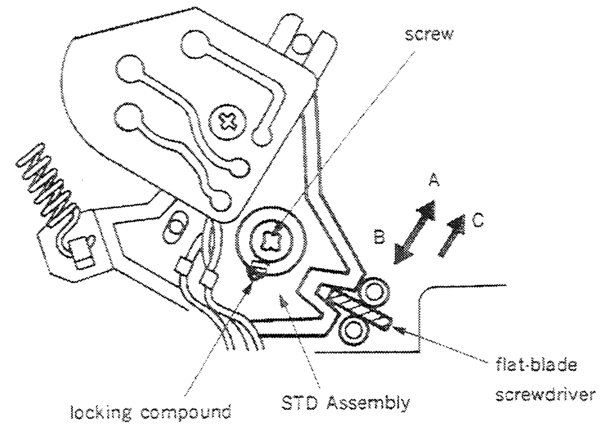
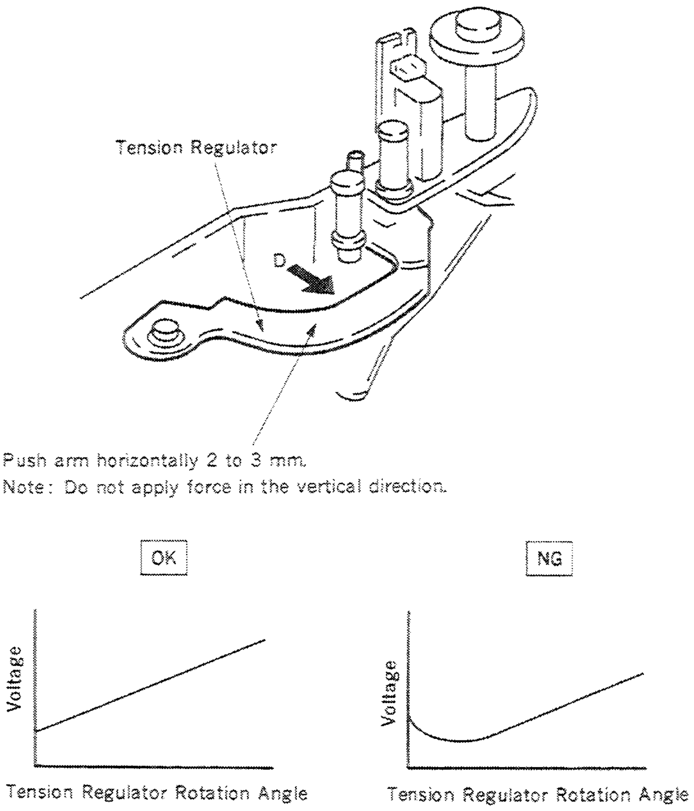

screw
A
B
C
flat-blade screwdriver
locking compound
STD Assembly

Fig. 4

Spec. :
DC voltage of TP301
min. to min.+0.2 V


Tension Regulator
D
OK
NG
Voltage
Tension Regulator Rotation Angle
Voltage
Tension Regulator Rotation Angle

Push arm horizontally 2 to 3 mm.
Note: Do not apply force in the vertical direction.

Fig. 5

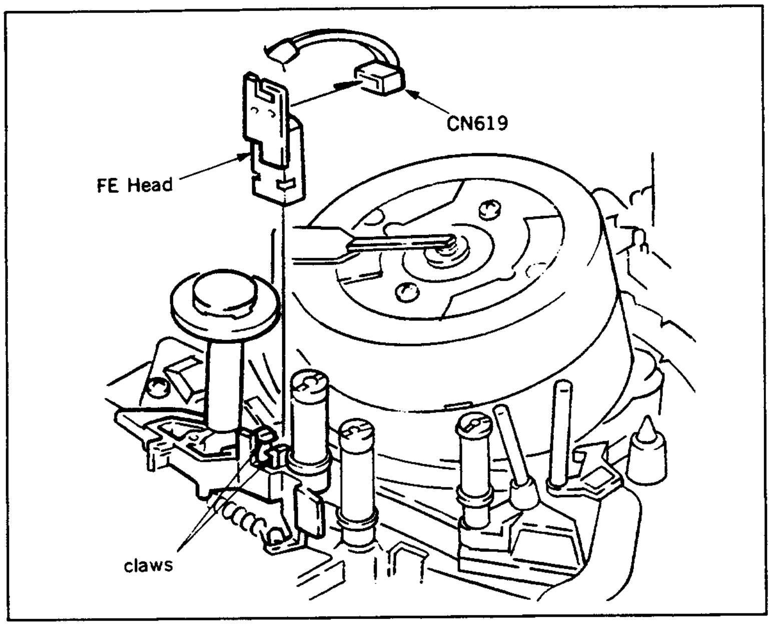
4-8. FE HEAD REPLACEMENT

(1) Disconnect connector CN619 from the head board.

(2) Remove two claws, then remove the FE head.

Precaution for installation

①Push in the FE head until the two claws lock into place.


CN619
FE Head
claws

4-9. TAPE STABILIZER ASS'Y (TG-4 GUIDE) AND TG-3 GUIDE REPLACEMENT

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller (SVRM-100, RM-V100, or RM-V200)
Sony oil (7-661-018-18)

(1) Remove the cassette compartment according to sub-section 4-2.

(2) Remove the FE head according to sub-section 4-8.

(3) Remove the tension coil spring.

(4) Remove the stop washer 1.5, then remove the compression coil spring.

(5) Remove the tape stabilizer ass'y from the chassis.

Tape stabilizer (TG-4 guide)

(6) Remove three claws, then remove the TS shaft retainer.

(7) Remove the stop ring, then remove the tape stabilizer.

TG-3 guide

(8) Turn the TG-3 guide counterclockwise with a guide adjustment screwdriver, and remove it.

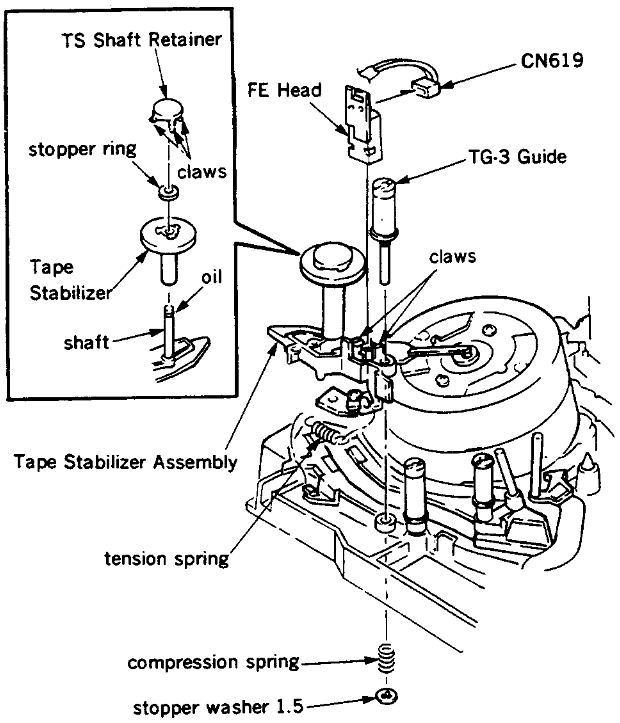

TS Shaft Retainer
stopper ring
claws
Tape Stabilizer
oil
shaft
FE Head
CN619
TG-3 Guide
claws
Tape Stabilizer Assembly
tension spring
compression spring
stopper washer 1.5

Fig. 1

Precautions for installation

①Clean the mounting shaft of the tape stabilizer with cleaning fluid, then apply 1/3 of a drop of Sony oil.

②Install the TG-3 guide to the height shown in Fig. 2.

[Adjustment after replacement]

TG-3 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) Set the master block with the stamped L3 face upward, then place it against the TG-3 guide from the direction shown in the drawing, and confirm that the height of the lower flange satisfies the specification. (Figs. 3 and 4)

If the specification is not satisfied

(6) Turn the flange of the TG-3 guide with the guide adjustment screwdriver.

(7) Perform tape run alignments of section 6.

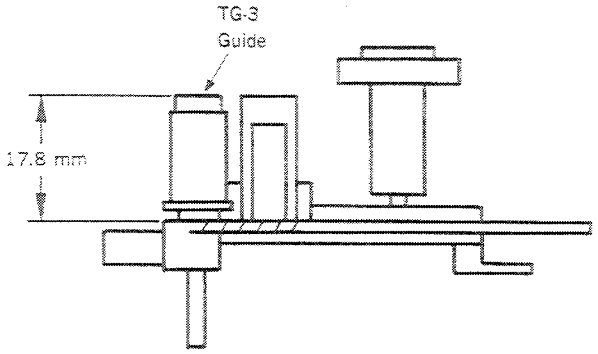

TG-3
Guide
17.8 mm

Fig. 2

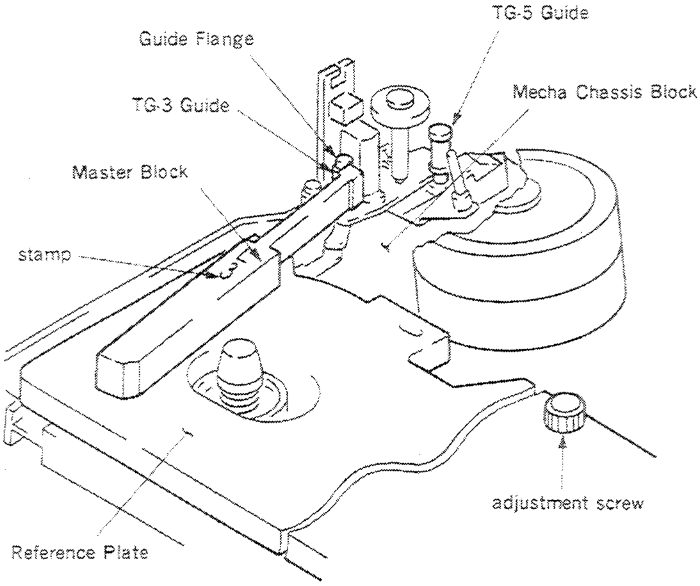

TG-5 Guide
Guide Flange
Mecha Chassis Block
TG-3 Guide
Master Block
stamp
adjustment screw
Reference Plate

Fig. 3

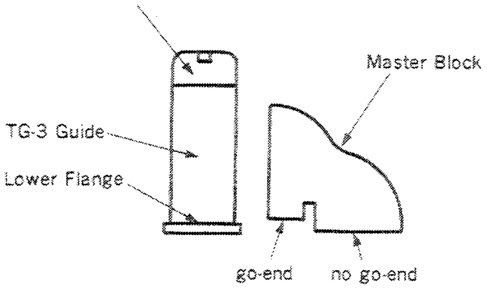

Guide Flange
Master Block
TG-3 Guide
Lower Flange
go-end
no go-end

Fig. 4

Spec. :
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

4-10. AUDIO HEAD ASS'Y REPLACEMENT

Tools:

Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (width 5.5 mm)
Thickness gauge (9-911-053-00)
Remote controller (SVRM-100, RM-V100, or RM-V200)
MOLYKOTE grease EM-30LG (J-6090-014-A)
or MOLYKOTE grease EM-30L : DOW CORNING Corp.

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Disconnect connectors CN616, 617 and 618 from the AH board.
(3) Remove the tension coil spring A and B.
(4) Remove the AC adjustment screw.
(5) Remove the adjustment nut, then pull out the audio head ass'y.

Precautions for installing the audio head

①Insert part **a** of the torsion coil spring into the hole in the chassis, then insert part **b** into the bend in the ACE base ass'y. (Fig. 1)
②Smear grease onto the bend that the ACE base ass'y touch the AC adjustment screw. (Fig. 1)
③Install the audio head ass'y and the AC adjustment screw to the height shown in Fig. 3.

[Adjustment after replacement]

Audio head zenith adjustment

(1) Push the PLAY button of the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it gently against the audio head from the direction shown in the drawing (Fig. 2).

Caution: Take care not to damage the surface of the audio head.

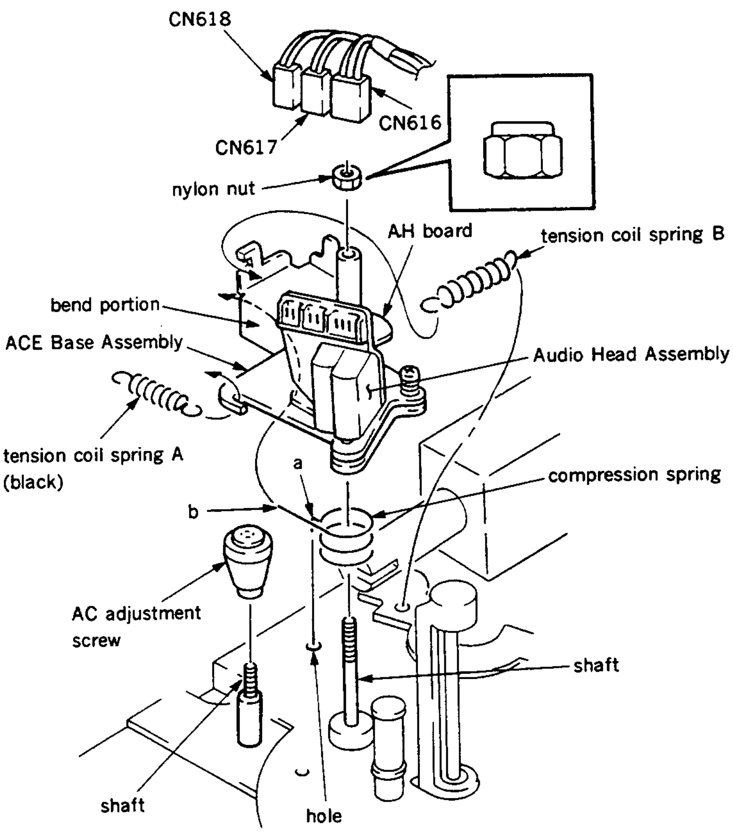

CN618
CN617
CN616
nylon nut
AH board
tension coil spring B
bend portion
ACE Base Assembly
Audio Head Assembly
tension coil spring A
(black)
a
b
compression spring
AC adjustment
screw
shaft
shaft
hole

Fig. 1

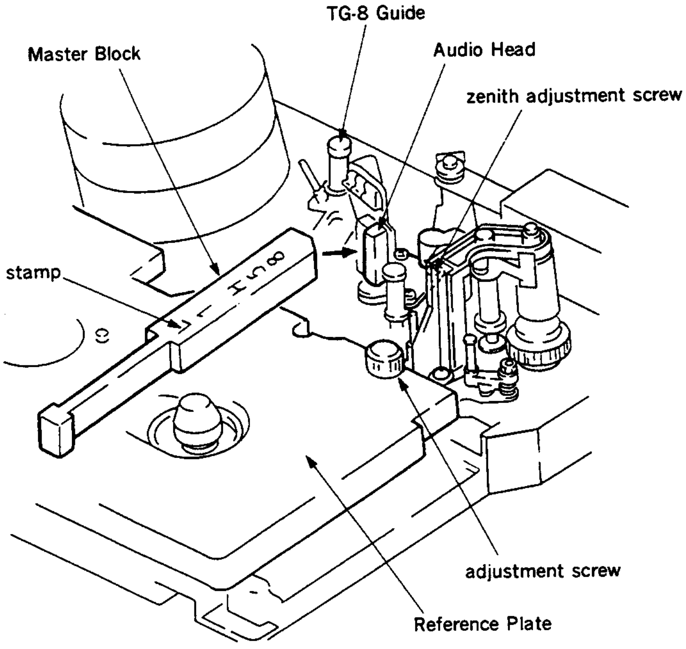

TG-8 Guide
Master Block
Audio Head
zenith adjustment screw
stamp
adjustment screw
Reference Plate

Fig. 2

(6) Tilt the head with the zenith adjustment screw until gap A satisfies the specification. (Fig. 4)

Audio head azimuth adjustment

(7) Change the orientation of the master block and place it against the side of the audio head from the direction shown in the drawing. (Fig. 5)

(8) Turn the azimuth adjustment screw so that gaps B and C satisfy the specification. (Fig. 6)

(9) Confirm that the zenith specification is satisfied.

If the specification is not satisfied

(10) Repeat the zenith and azimuth adjustments until the relevant specifications are satisfied.

Tape run adjustment

(11) Perform tape run alignments of section 6.

- Upon completion of adjustment, smear locking compound onto the AC adjustment screw, zenith adjustment screw and the azimuth adjustment screw. (Fig. 7)

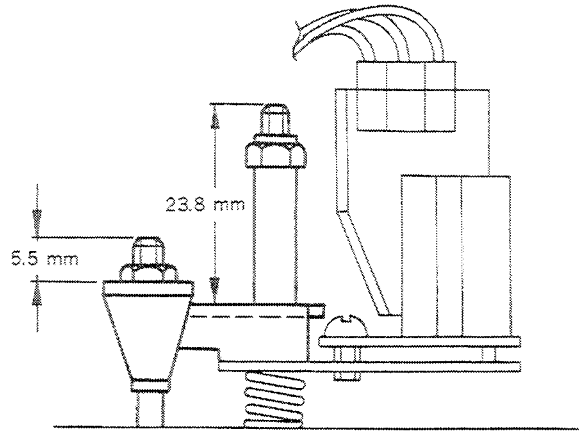


Fig. 3

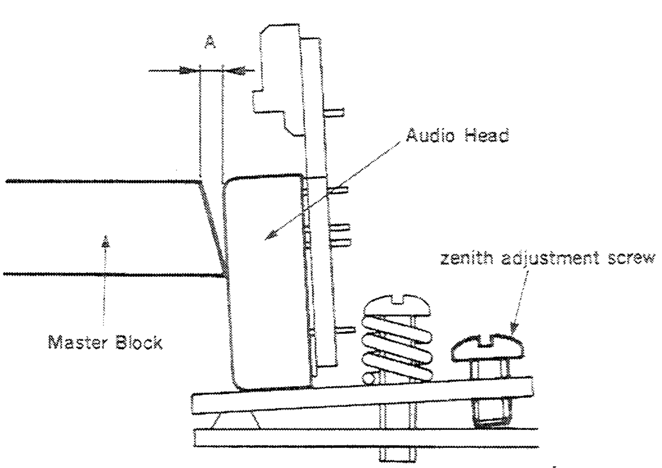

A
Audio Head
zenith adjustment screw
Master Block

Fig. 4

Spec.:
gap A=0 to 0.05 mm

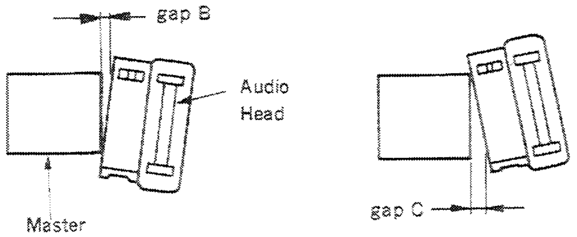

gap B
Audio Head
Master Block
gap C

Fig. 6

Spec.:
gap B, C=0 to 0.05 mm

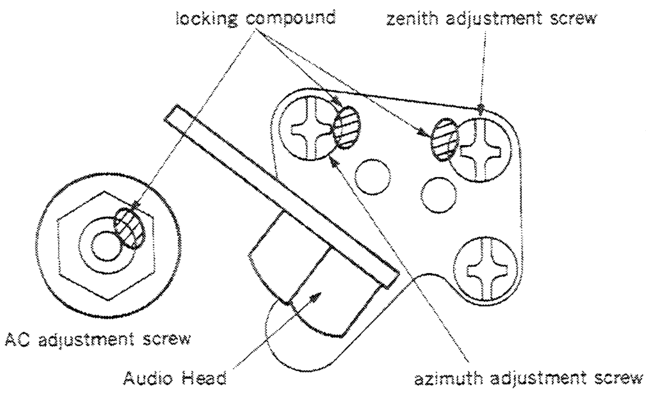

locking compound
zenith adjustment screw
AC adjustment screw
Audio Head
azimuth adjustment screw

Fig. 7

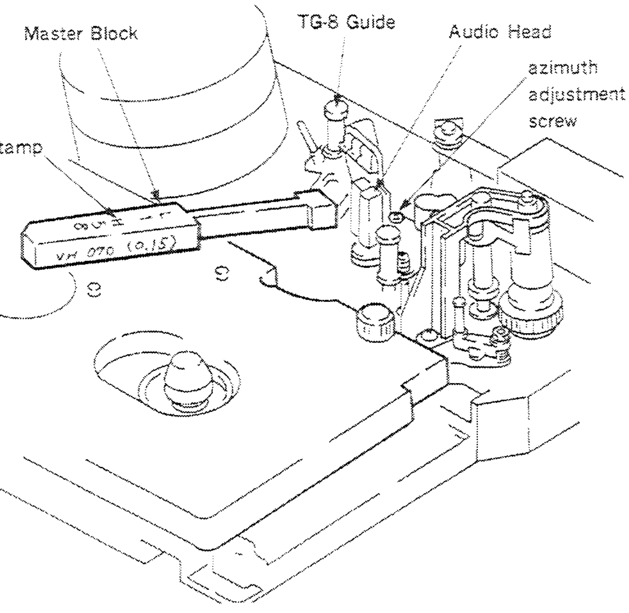

Master Block
TG-8 Guide
Audio Head
azimuth adjustment screw
stamp
VH 070 (0.15)

Fig. 5

4-11. TG-9 GUIDE REPLACEMENT

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89 mm)
Remote controller (SVRM-100, RM-V100, or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw by the hex wrench. (Fig. 1)
(3) Rotate the TG-9 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

[Installation and height adjustment]

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it against the TG-9 guide from the direction shown in the drawing, and tighten the set screw until the lower flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Set screw tightening torque: 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1 kg•cm))
(6) Turn the flange of the guide with the guide adjustment screwdriver until the required specification is satisfied. (Fig. 3)
(7) Perform tape run alignments of section 6.

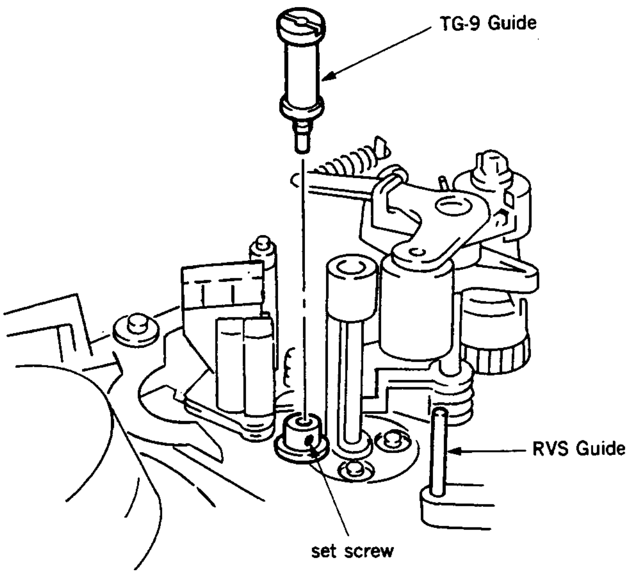

TG-9 Guide
RVS Guide
set screw

Fig. 1

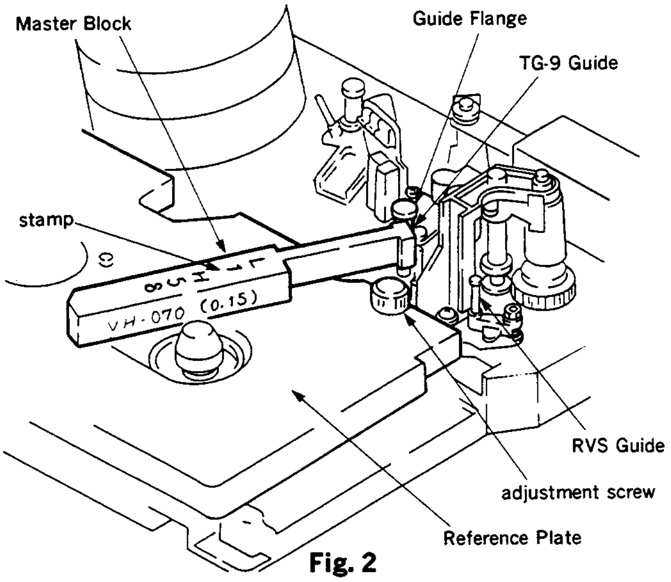

Master Block
Guide Flange
TG-9 Guide
stamp
VH-070 (0.15)
RVS Guide
adjustment screw
Reference Plate

Fig. 2

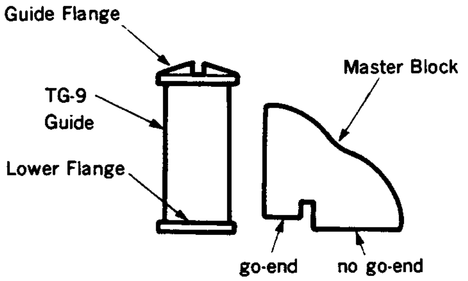

Guide Flange
Master Block
TG-9 Guide
Lower Flange
go-end
no go-end

Fig. 3

Spec. :
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

4-12. PINCH ROLLER BLOCK ASS'Y AND ELEVATOR CAM REPLACEMENT

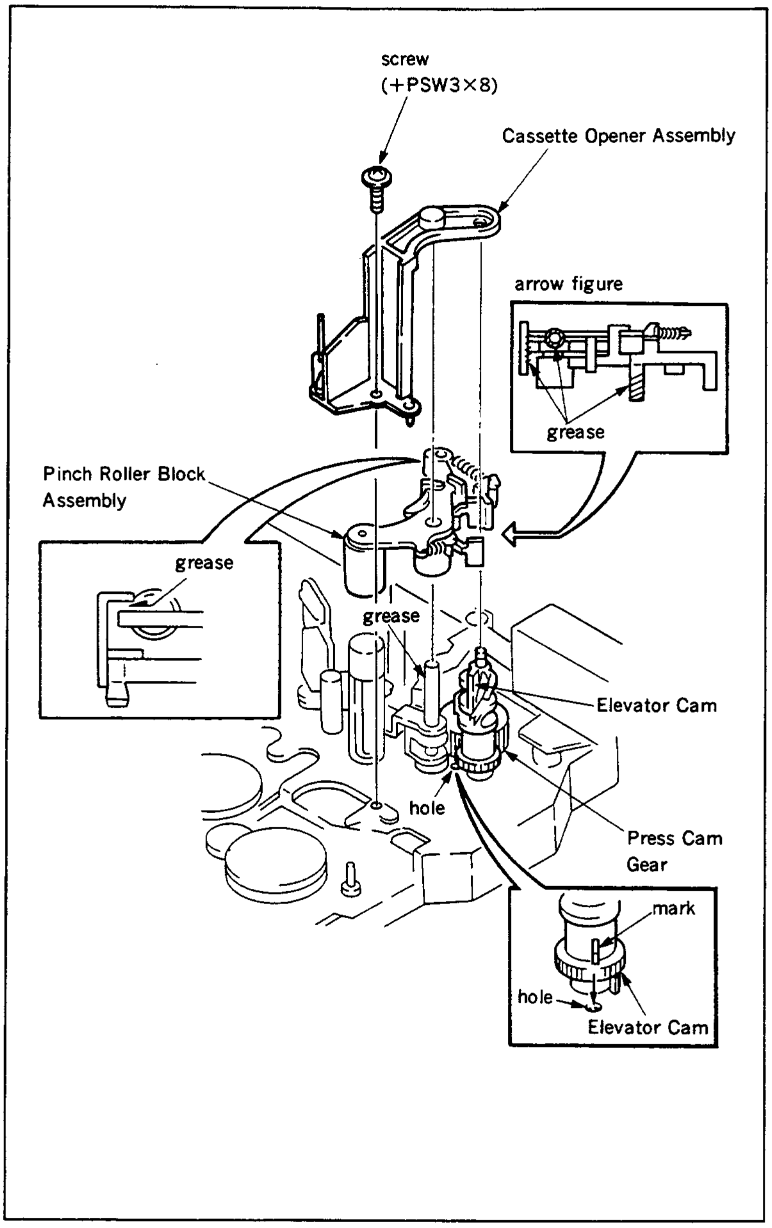
Tool:
MOLYKOTE grease EM-30LG (J-6090-014-A)
or MOLYKOTE grease EM-30L : DOW CORNING Corp.

(1) Remove the screw, then remove the cassette opener ass'y.
(2) Pull out the pinch roller block ass'y.
(3) Pull out the elevator cam.

Precautions for installation

①Align the mark on the elevator cam with the hole in the chassis, then engage the elevator cam with the press cam gear, and install it on the shaft. (As a result, the engagement phases of the elevator cam and press cam gear will coincide.)

②Smear the parts of the pinch roller block ass'y indicated by the arrows (five) with MOLYKOTE grease.


screw
(+PSW3×8)
Cassette Opener Assembly
arrow figure
grease
Pinch Roller Block Assembly
grease
grease
Elevator Cam
hole
Press Cam Gear
mark
hole
Elevator Cam

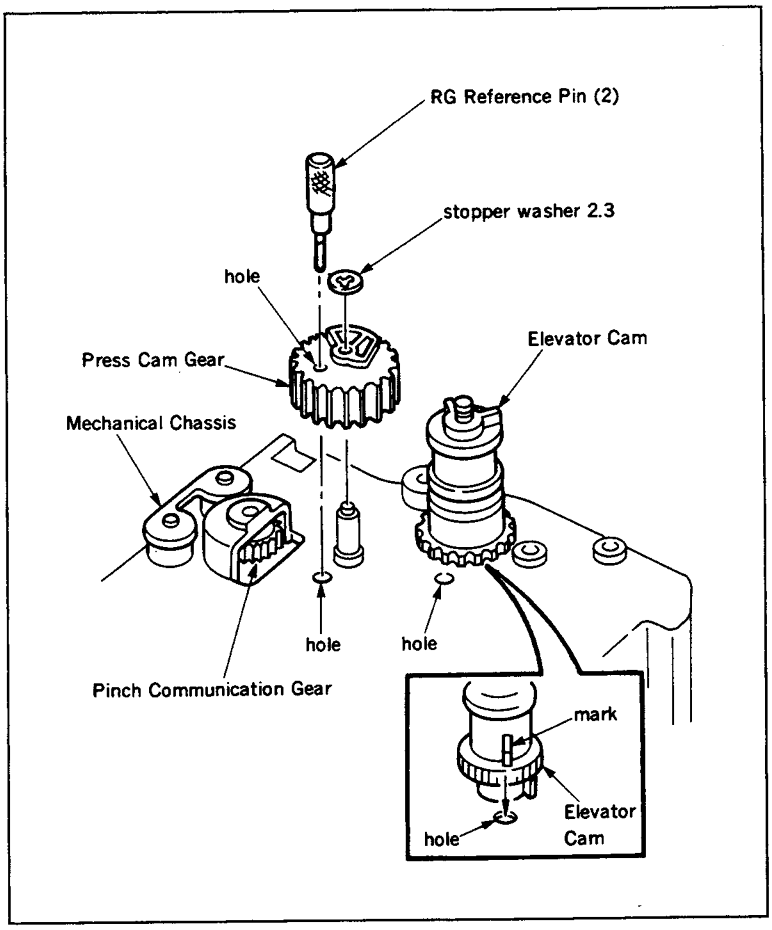
4-13. PRESS CAM GEAR REPLACEMENT

Tool :
RG reference pin (2) (J-6380-050-A)

(1) Remove the pinch roller block ass'y and Pinch solenoid ass'y according to sub-sections 4-12 and 4-31.
(2) Remove the stop washer 2.3, then remove the press cam gear.

Precautions for installation

①Pass RG reference pin (2) through the hole in the press cam gear. Next, align it with the hole in the chassis, then engage the press cam gear with the elevator cam and the pinch communication gear, and install it on the shaft.
(By aligning the pin with the holes in the gear, the meshing phases of the press cam gear, elevator cam and pinch communication gear will coincide.)
②The mark on the elevator cam shown in the figure must coincide with the hole in the chassis.


RG Reference Pin (2)
stopper washer 2.3
hole
Elevator Cam
Press Cam Gear
Mechanical Chassis
hole
hole
Pinch Communication Gear
mark
Elevator Cam
hole

4-14. RVS ARM ASS'Y (RVS GUIDE) AND RVS CAM GEAR REPLACEMENT

Tools :

RG reference pin (1) (J-6380-040-A)
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (width 5.5 mm)
Remote controller (SVRM-100, RM-V100, or RM-V200)
Sony oil (7-661-018-18)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the E ring, then pull out the RVS arm ass'y. (Fig. 2)
(3) Remove the adjustment nut, then remove the guide base ass'y and the compression coil spring. (Fig. 1)
(4) Remove the stop washer 2.3, then pull out the RVS cam gear. (Fig. 2)

Precautions for installation

①Insert the projection on the guide base ass'y into the hole in the RVS arm, then install the guide base ass'y. (Fig. 1)

②Pass RG reference pin (1) through the hole in the RVS cam gear, then align it with hole B in the chassis, engage the RVS cam gear with the RVS relay gear, then install the gears on the shafts. (Fig. 2). Also, confirm that the hole in the press cam gear coincides with the hole in the chassis. (Refer to sub-section 4-13.)
(By aligning the pin with the holes in the gear, the meshing phases of the drive gears will coincide.)

③Clean the mounting shaft of the RVS arm ass'y with cleaning fluid, then apply 1/2 a drop of Sony oil. (Fig. 2)

④Insert part **a** of the torsion coil spring into hole A in the chassis, then insert part **b** into the bend in the RVS arm ass'y. (Fig. 2)

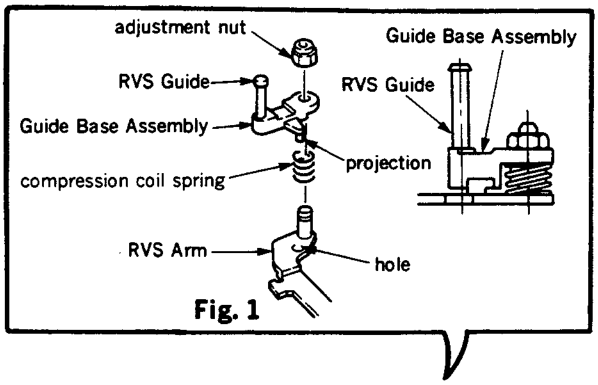

adjustment nut
Guide Base Assembly
RVS Guide
RVS Guide
Guide Base Assembly
projection
compression coil spring
RVS Arm
hole

Fig. 1

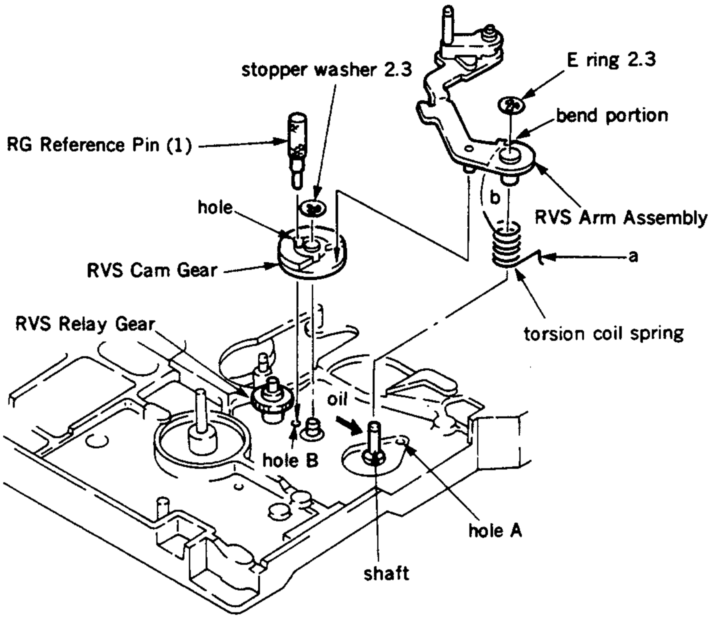

stopper washer 2.3
E ring 2.3
bend portion
RG Reference Pin (1)
hole
b
RVS Arm Assembly
RVS Cam Gear
a
RVS Relay Gear
torsion coil spring
oil
hole B
hole A
shaft

Fig. 2

[**Adjustment after replacement**]

RVS guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) Set the master block with the stamped L1 face upward, then place it against the RVS guide from the direction shown in the figure. (Fig. 3)

(6) Using a box screwdriver, turn the adjustment nut until the specification is satisfied. (Fig. 4)

(7) Perform tape run adjustment of section 6.

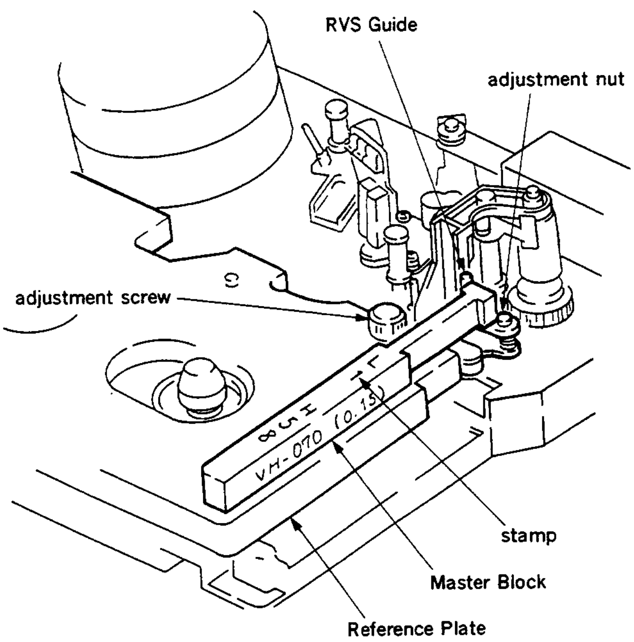

RVS Guide
adjustment nut
adjustment screw
stamp
Master Block
Reference Plate

Fig. 3

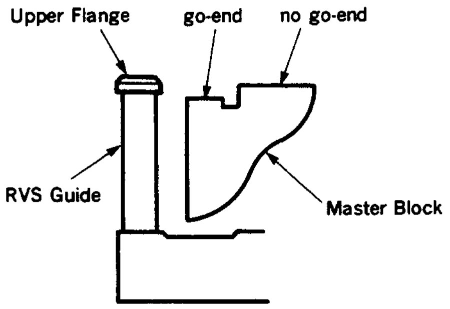

Upper Flange
go-end
no go-end
RVS Guide
Master Block

Fig. 4

Spec. :
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-15. FR DRIVE GEAR AND RVS RELAY GEAR REPLACEMENT

Tools :
RG reference pin (1) (J-6380-040-A)
RG reference pin (2) (J-6380-050-A)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the RVS arm ass'y and the RVS cam gear according to sub-section 4-14.
(3) Remove each of stop washer 2.3, then remove the FR drive gear and the RVS relay gear. (Fig. 1)

Precautions for installation

Gear installation sequence

①Install the RVS relay gear on the shaft, taking care that it is facing the right direction. (Fig. 3)

②Pass RG reference pin (2) through the hole in the FR drive gear, then align it with the hole in the mode gear (2), engage the FR drive gear with the RVS relay gear, and install it on the shaft. (Fig. 1)

③Using RG reference pin (1), engage the RVS cam gear with the RVS relay gear, then install it on the shaft according to subsection 4-14. (Fig. 2) (By aligning the pin with the holes in the gears, the meshing phases of the drive gears will coincide.)

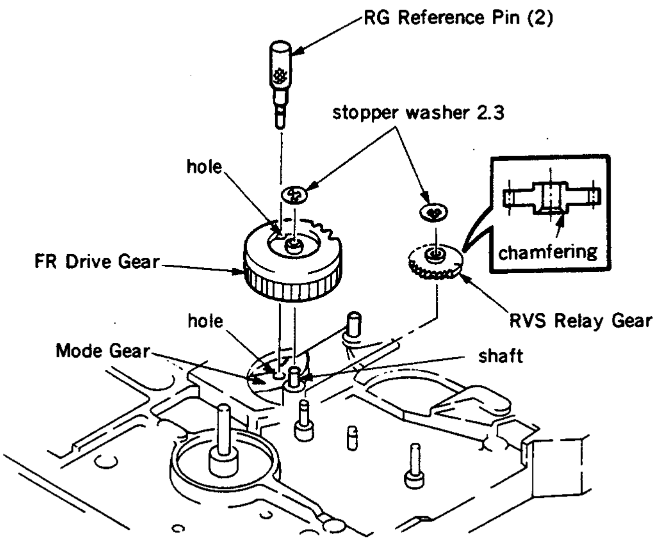

RG Reference Pin (2)
stopper washer 2.3
hole
chamfering
FR Drive Gear
hole
RVS Relay Gear
Mode Gear
shaft

Fig. 1

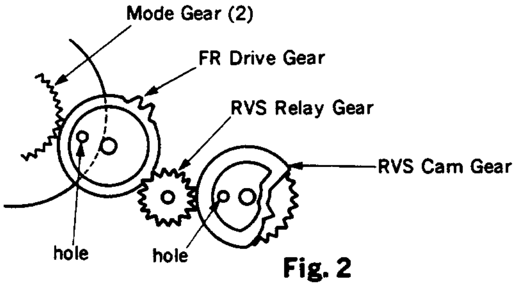

Mode Gear (2)
FR Drive Gear
RVS Relay Gear
RVS Cam Gear
hole
hole

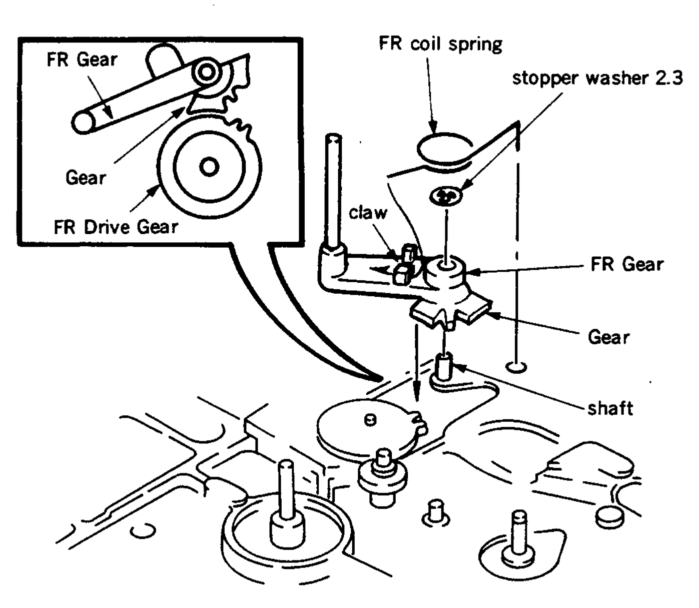
Fig. 2

4-16. FR GEAR REPLACEMENT

(1) Remove the FR coil spring.
(2) Remove stop washer 2.3, then pull out the FR gear.

Precautions for installation

①Align the gear part of the FR gear with the position shown in Fig. 2.


FR Gear
Gear
FR Drive Gear
FR coil spring
stopper washer 2.3
claw
FR Gear
Gear
shaft

4-17. REEL TABLE ASS'Y REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Reel table height adjustment tool (J-6380-090-A)
Hex wrench screwdriver (width 1.5 mm)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the set screw with the hex wrench.
(3) Pull out the reel table ass'y from the reel shaft.

[Reel table height adjustment]

(1) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
(2) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(3) Clean the top of the reference plate and the adjustment face of the reel table height adjustment tool with cleaning fluid.
(4) Set the reel table height adjustment tool with the stamped side upward, then install it on the reference plate. (Fig. 2)
(5) Perform adjustment so that the height of the S side reel table (or T side reel table) satisfies the specification at position **a**, then rotate the table 90° in the direction of the arrow, and perform adjustment so that the height of the reel table satisfies the specification at position **b**. (Figs. 2 and 3)

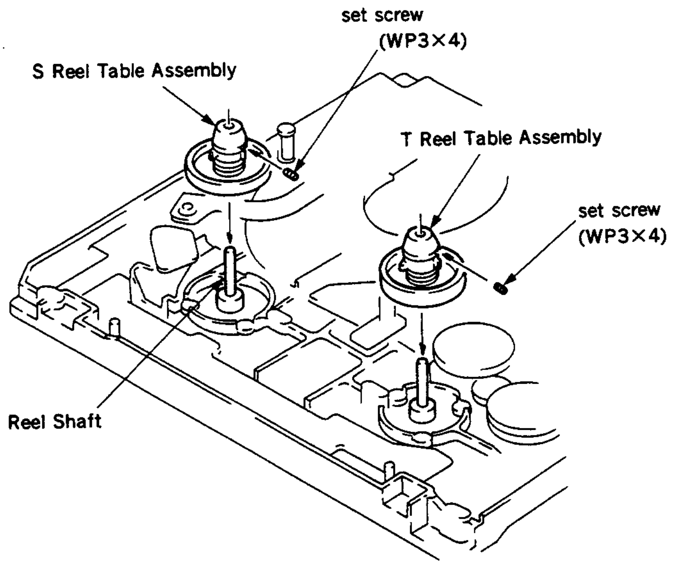

set screw
(WP3×4)
S Reel Table Assembly
T Reel Table Assembly
set screw
(WP3×4)
Reel Shaft

Fig. 1

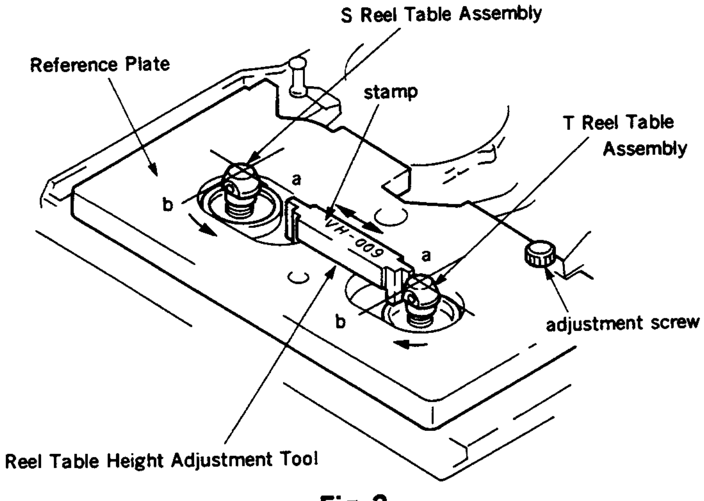

S Reel Table Assembly
Reference Plate
stamp
T Reel Table
Assembly
a
b
VH-009
a
b
adjustment screw
Reel Table Height Adjustment Tool

Fig. 2

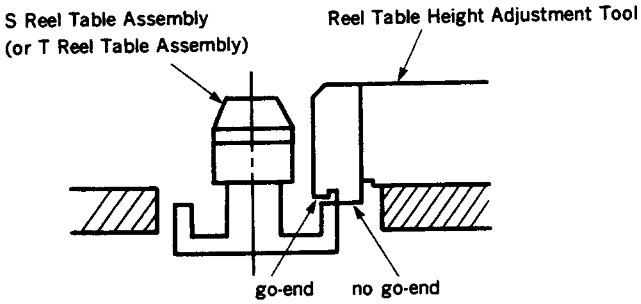

S Reel Table Assembly
(or T Reel Table Assembly)
Reel Table Height Adjustment Tool
go-end
no go-end

Fig. 3

Spec. :
The height of the S side (T side) reel table must pass at the go-end of the reel table height adjustment tool and stop at the no-go end.

4-18. REEL BRAKE ASS'Y REPLACEMENT

(1) Remove the cassette compartment according to sub-section 4-2.

(2) Remove the harness of the LE-80 board from the claw of the reel brake ass'y. (surface of chassis) (Fig. 1)

(3) Disconnect connector CN656W of the solenoid harness from the HN-160 board. (surface of chassis) (Fig. 1)

(4) Remove two screws, then remove the reel brake ass'y. (back side of chassis) (Fig. 1)

(5) Remove the spring, then the claw of the M clamp, then remove the brake arm (S) ass'y and the brake arm (T) ass'y. (Fig. 2)

(6) Raise part A of the B slider in the direction of arrow B, then remove the claw from the iron core of the solenoid, and pull out the B slider in the direction of arrow C. (Fig. 2)

(7) Remove two screws and two washers, then remove the solenoid. (Fig. 2)

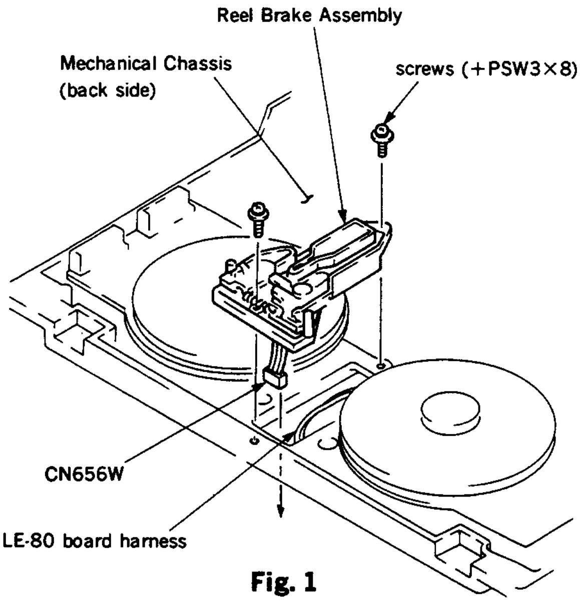

Reel Brake Assembly
Mechanical Chassis
(back side)
screws (+PSW3×8)
CN656W
LE-80 board harness

Fig. 1

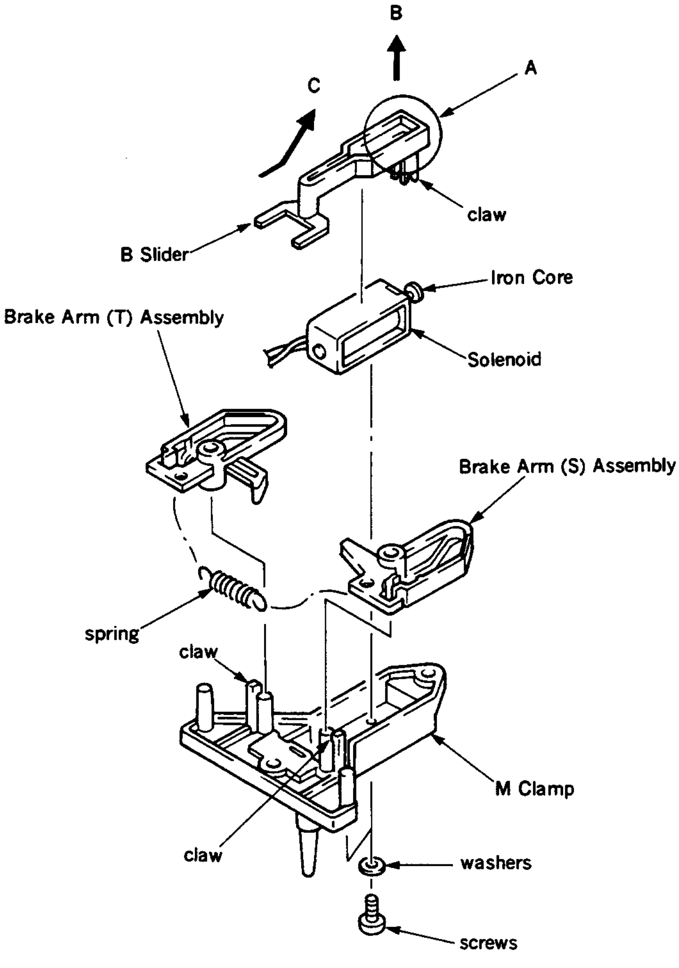

B
A
C
claw
B Slider
Iron Core
Brake Arm (T) Assembly
Solenoid
Brake Arm (S) Assembly
spring
claw
M Clamp
claw
washers
screws

Fig. 2

4-19. REEL MOTOR REPLACEMENT

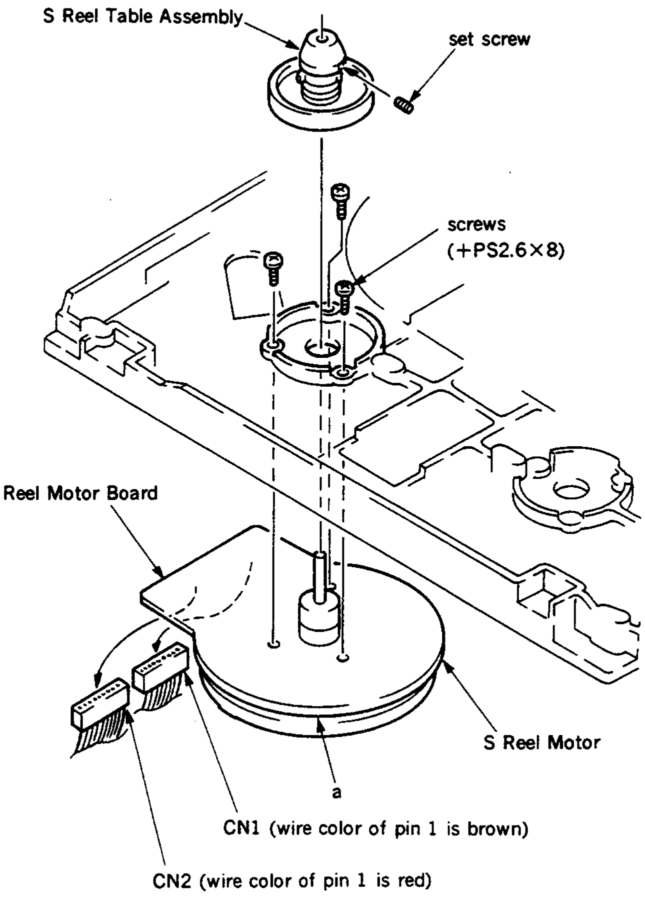
Tools :
Reference plate (J-6380-080-A)
Reel table height adjustment tool (J-6380-090-A)
Hex wrench screwdriver (width 1.5 mm)

- The procedure of replacing the reel motor is the same for both the S side and the T side. Here, the procedure of replacing the S side reel motor is described.

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the S side reel table ass'y according to sub-section 4-17.
(3) Disconnect two connectors CN1 and CN2 from the reel motor board.
(4) Remove three screws, then remove the S side reel motor.

Note : Do not touch the outer periphery (**a** part) of the reel motor with the fingers.

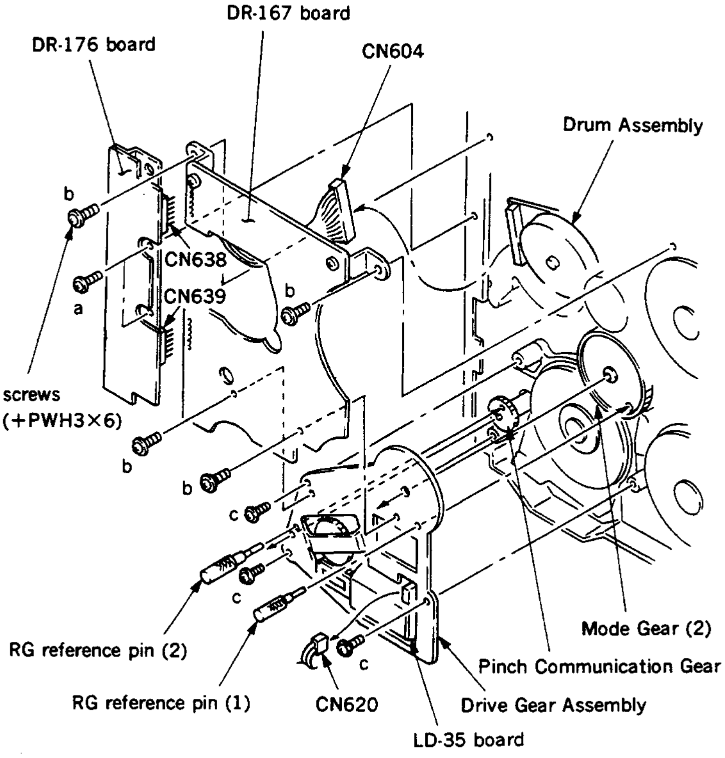
[Adjustment after installation]
(1) Adjust the height of the S side reel table ass'y according to sub-section 4-17.


S Reel Table Assembly
set screw
screws
(+PS2.6×8)
Reel Motor Board
S Reel Motor
a
CN1 (wire color of pin 1 is brown)
CN2 (wire color of pin 1 is red)

4-20. DRIVE GEAR ASS'Y REPLACEMENT

Tools :
RG reference pin (1) (J-6380-040-A)
RG reference pin (2) (J-6380-050-A)

(1) Remove the LDB brake ass'y from the drive gear ass'y using the procedure in sub-section 4-32.
(2) Remove two screws (a), then disconnect two connectors CN638 and CN639 from the DR-167 board, and remove the DR-176 board.
(3) Disconnect connector CN604 from the drum ass'y.
(4) Disconnect connector CN620 from the LD-35 board of the cam motor ass'y.
(5) Remove four screws (b), then remove the DR-176 board.
(6) Remove three screws (c), then remove the drive gear ass'y.
Take care not to rotate the mode gear (2) and the pinch communication gear more than one revolution after removing the drive gear ass'y.


DR-167 board
DR-176 board
CN604
Drum Assembly
b
CN638
CN639
a
b
screws
(+PWH3×6)
b
b
c
c
c
c
Mode Gear (2)
RG reference pin (2)
Pinch Communication Gear
RG reference pin (1)
CN620
Drive Gear Assembly
LD-35 board

Precautions for installation

①Pass RG reference pin (1) and RG reference pin (2) through the holes shown in the drawing of the drive gear ass'y, then align the pins with the holes in the mode gear (2) and pinch communication gear, respectively, and install the drive gear ass'y. (By aligning the pins with the holes in the gears, the meshing phases of the drive gear system will coincide.)

4-20-1. Cam Motor Ass'y Replacement

(1) Remove the screw, then remove the cam motor ass'y. (Fig. 1)

Precautions for installation

①Align the groove of the cam motor ass'y with part **a** of the drive gear ass'y. (Fig. 1)

②Align the hole in the cam motor ass'y with the projection on the drive gear ass'y. (Fig. 1)

③Set the cam motor parallel to the **b** face of the drive gear ass'y, then screw it fixed. (Fig. 2)

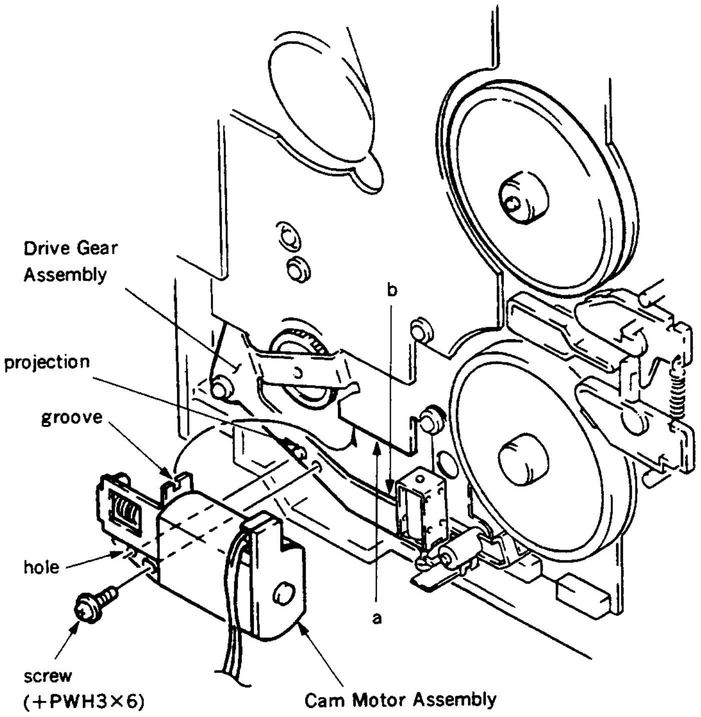

Drive Gear Assembly
projection
groove
hole
screw (+PWH3×6)
b
a
Cam Motor Assembly

Fig. 1

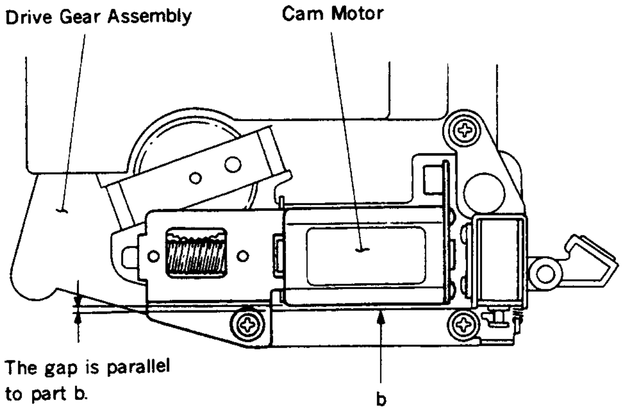

Drive Gear Assembly
Cam Motor
The gap is parallel to part b.
b

Fig. 2

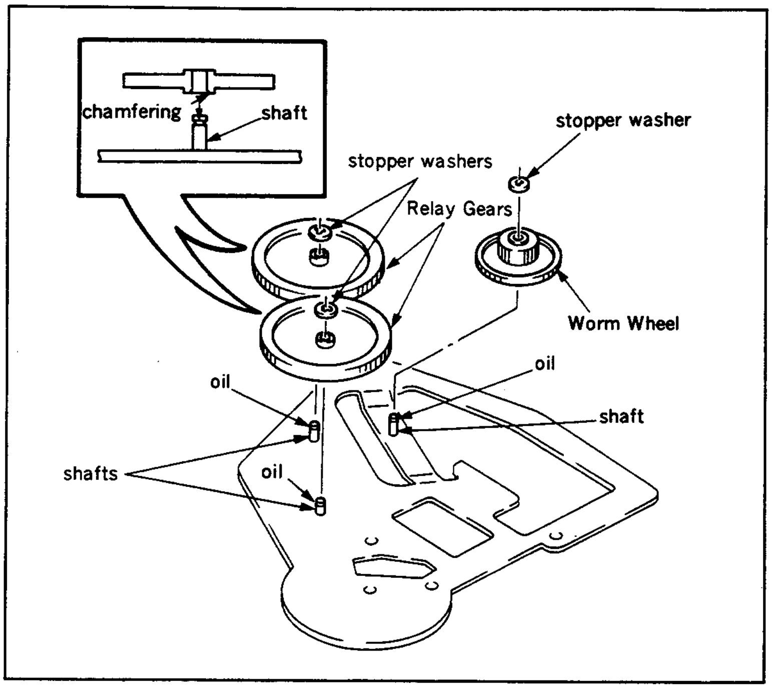
4-20-2. Relay Gears and Worm Wheel Replacement

Tool :
Sony oil (7-661-018-18)

(1) Remove the stop washer, then remove the relay gear or the worm wheel.

Precautions for installation

①Clean the shafts with cleaning fluid, then apply 1/2 a drop of Sony oil.


chamfering
shaft
stopper washer
stopper washers
Relay Gears
Worm Wheel
oil
shaft
oil
shafts
oil

4-21. MODE GEAR (2) ASS'Y REPLACEMENT

Tool :
RG reference pin (2) (J-6380-050-A)

(1) Remove the drive gear ass'y according to sub-section 4-20.
(2) Remove the stop washer, then remove the mode gear (2) ass'y from the shaft. (Fig. 1)

Precautions for installation

①Push the loading gear (right) in the direction of arrow A. Pass RG reference pin (2) through the hole in the mode gear (2) ass'y, then align it with the ⋇ mark on the chassis, then engage the mode gear ass'y with the FR drive gear, and install it. (Figs. 1 and 2)
(By aligning the pin with the holes in the gears, the meshing phases of the mode gear ass'y and the FR drive gear will coincide.)
②Align the meshing phases of the gears, and install the drive gear ass'y according to sub-section 4-20.

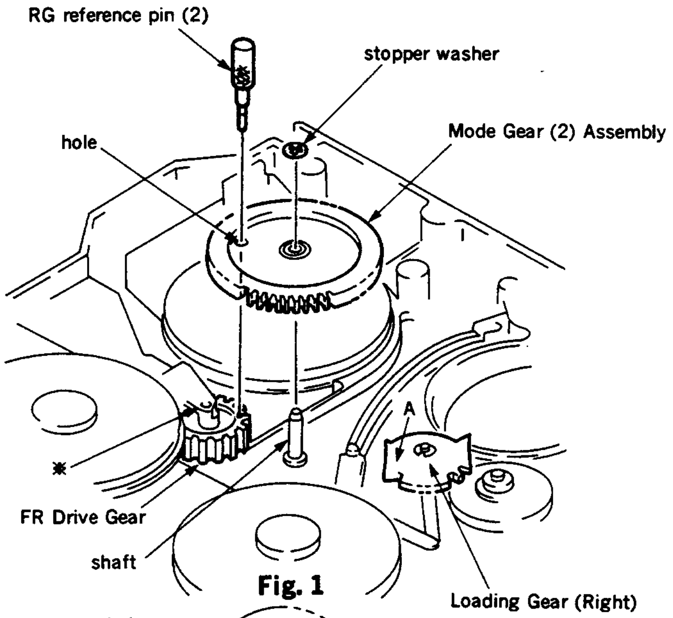

RG reference pin (2)
stopper washer
hole
Mode Gear (2) Assembly
A
⋇
FR Drive Gear
shaft
Loading Gear (Right)

Fig. 1

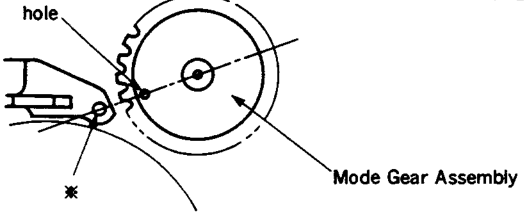

hole
⋇
Mode Gear Assembly

Fig. 2

4-22. LOADING GEAR (RIGHT) ASS'Y REPLACEMENT

Tool :
MOLYKOTE grease EM-30LG (J-6090-014-A)
or MOLYKOTE grease EM-30L : DOW CORNING Corp.

(1) Remove the drive gear ass'y according to sub-section 4-20.
(2) Remove the mode gear (2) ass'y according to sub-section 4-21.
(3) Rotate the gear part of the loading gear (right) by hand in the direction of the arrow to the position shown in Fig. 1.
(4) Remove two E rings, then remove the loading gear (right) ass'y. (Fig. 2)

Note : Take care not to deform the arm of the loading gear (right) ass'y.

Precautions for installation

①Align the mark on the loading gear (left) with the center point between two teeth on the loading gear (right), then install the chassis shaft and the shaft of the shuttle (right). (Fig. 3)
②Smear a small amount of grease to the part of the loading gear (right) ass'y indicated in the figure. (Fig. 2)
③Align the engagement phases of the mode gear (2) ass'y and the drive gear ass'y ,then install the gear ass'ys, according to sub-sections 4-21 and 4-20.

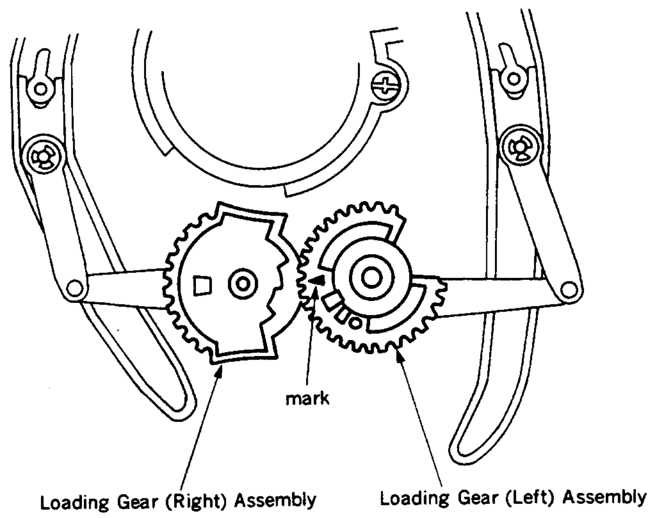

mark
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly

Fig. 1

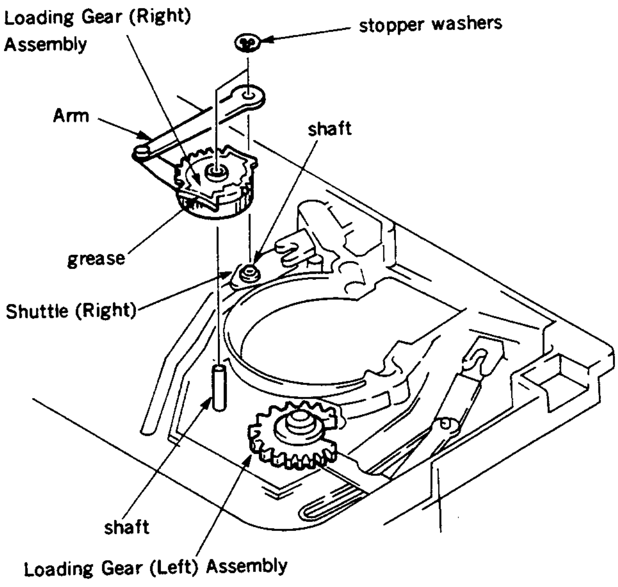

Loading Gear (Right) Assembly
stopper washers
Arm
shaft
grease
Shuttle (Right)
shaft
Loading Gear (Left) Assembly

Fig. 2

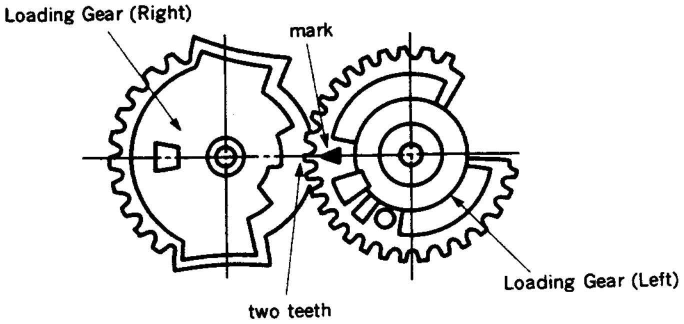

Loading Gear (Right)
mark
Loading Gear (Left)
two teeth

Fig. 3

4-23. LOADING GEAR (LEFT) ASS'Y REPLACEMENT

(1) Remove the cam motor ass'y according to subsection 4-20-1. (Fig. 1)

(2) Rotate the worm wheel of the drive gear clockwise with the fingers until the loading gear (left) ass'y moves to the position shown in Fig. 2. (Figs. 1 and 2)

(3) Remove two stop washers, then remove the loading gear (left) ass'y. (Fig. 3)

Note: Take care not to deform the arm of the loading gear (left) ass'y.

Precautions for installation

①Align the mark on the loading gear (left) with the center point between two teeth of the loading gear (right), then install the gears on the shaft of the chassis and the shaft of the shuttle (left). (Fig. 4)

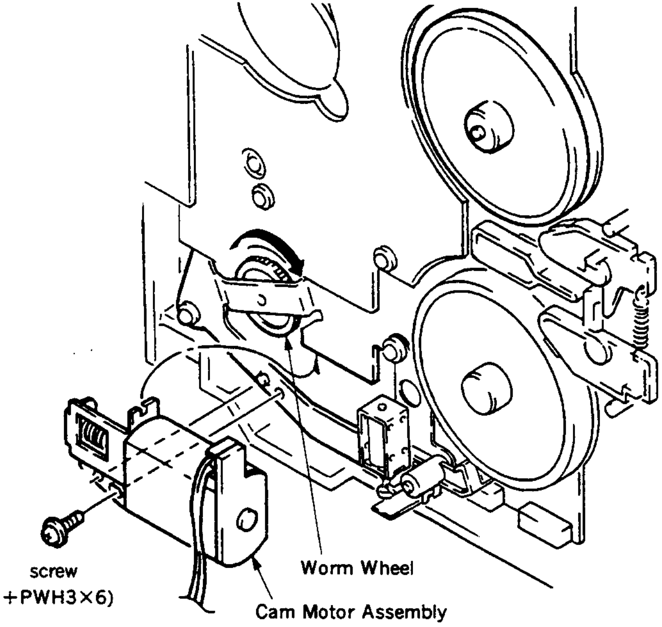

screw
(+PWH3×6)
Worm Wheel
Cam Motor Assembly

Fig. 1

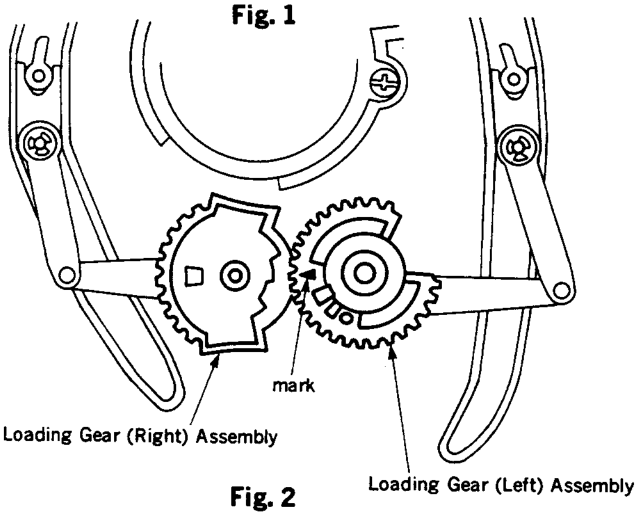

mark
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly

Fig. 2

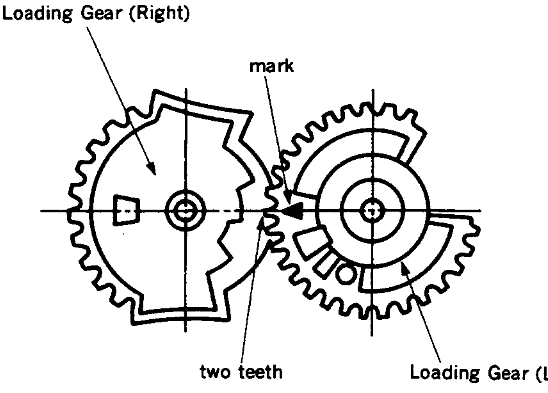

Loading Gear (Right)
mark
two teeth
Loading Gear (Left)

Fig. 4

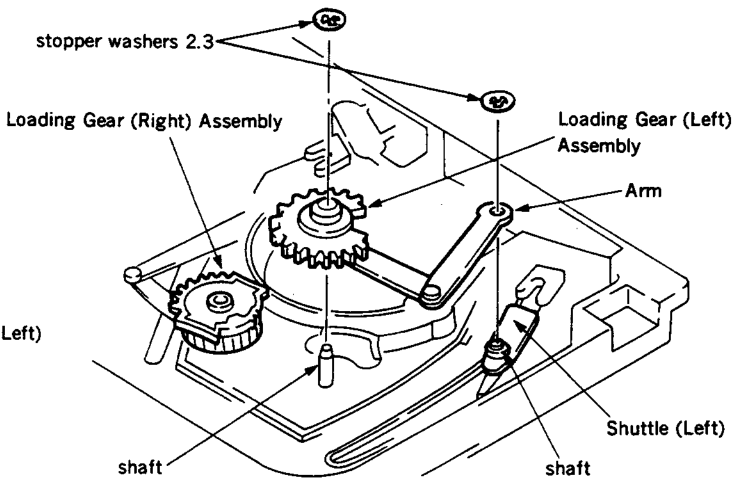

stopper washers 2.3
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly
Arm
Shuttle (Left)
shaft
shaft

Fig. 3

4-24. SHUTTLE (RIGHT) ASS'Y REPLACEMENT

Tools:
Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller (SVRM-100, RM-V100, or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Refer to sub-section 4-23, then move the loading gear (right) ass'y to the position shown in Fig. 1.
(3) Remove the stop washer, then remove the arm of the loading gear (right) ass'y from the shaft of the shuttle plate ass'y. (Fig. 2)

Note: Take care not to deform the arm of the loading gear (right) ass'y.

(4) Remove the screw, then remove the shuttle (right) ass'y and the shuttle plate ass'y. (Fig. 3)

Note: Move the shuttle (right) ass'y in the unthreading end direction to ensure that it does not strike the drum ass'y, then remove it.

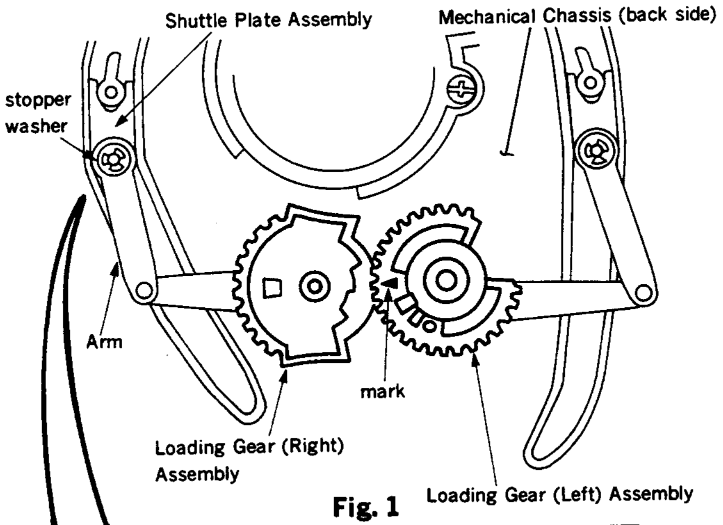

Shuttle Plate Assembly
Mechanical Chassis (back side)
stopper washer
Arm
mark
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly

Fig. 1

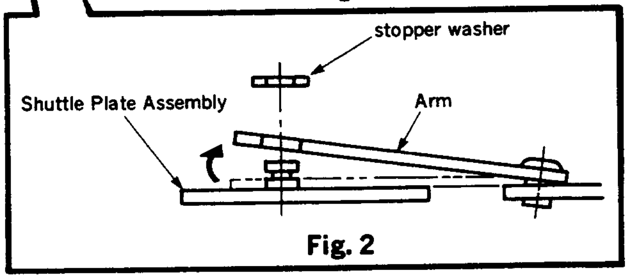

stopper washer
Shuttle Plate Assembly
Arm

Fig. 2

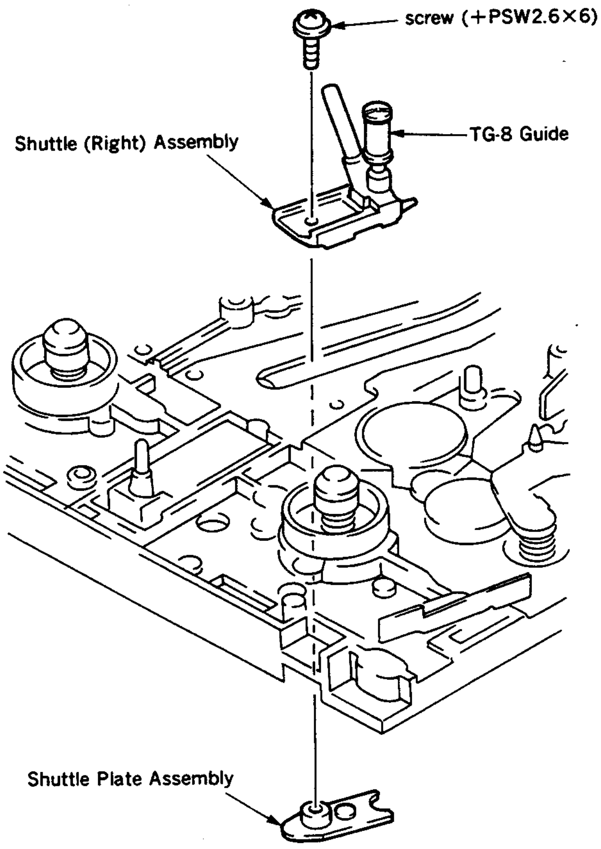

screw (+PSW2.6×6)
Shuttle (Right) Assembly
TG-8 Guide
Shuttle Plate Assembly

Fig. 3

Precautions for installation

①Put the screw as shown in Fig. 4 when installing the shattle (right) ass'y to the shattle plate ass'y.

[**Adjustment after replacement**]

TG-8 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 5) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the H10 stamped mark upward, then place it against the TG-8 guide from the direction shown in the figure. (Fig. 5)
(6) Using the guide adjustment screwdriver, turn the upper flange on the guide until the specification is satisfied. (Fig. 6)
(7) Perform tape run alignments of section 6.

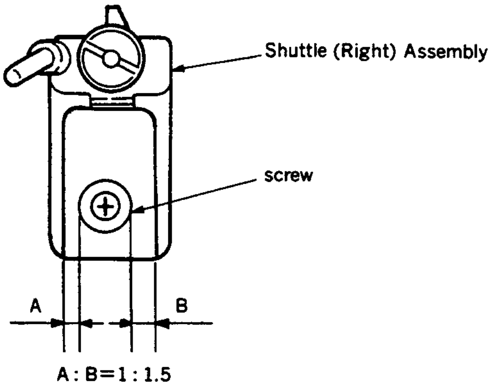

Shuttle (Right) Assembly
screw
A
B
A : B=1 : 1.5

Fig. 4

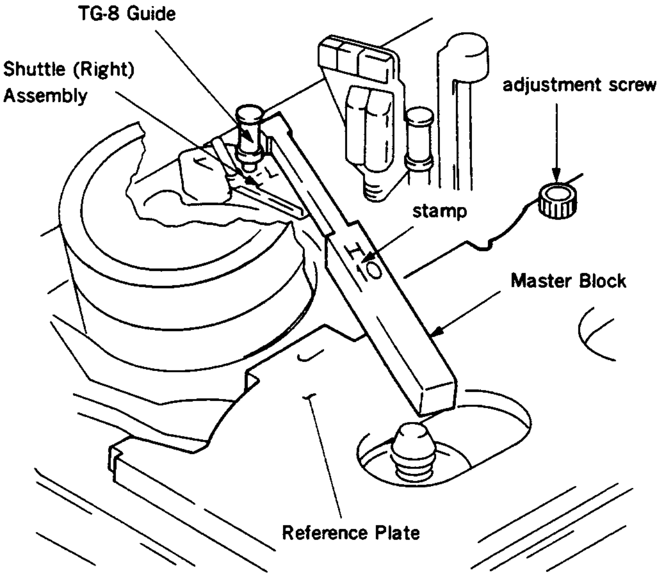

TG-8 Guide
Shuttle (Right) Assembly
adjustment screw
stamp
H10
Master Block
Reference Plate

Fig. 5

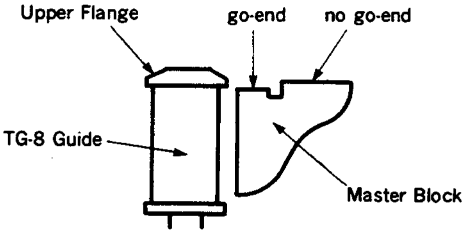

Upper Flange
go-end
no go-end
TG-8 Guide
Master Block

Fig. 6

Spec. :
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-25. TG-8 GUIDE REPLACEMENT

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89 mm)
Remote controller (SVRM-100, RM-V100, or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw with a hex wrench. (Fig. 1)
(3) Rotate the TG-8 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

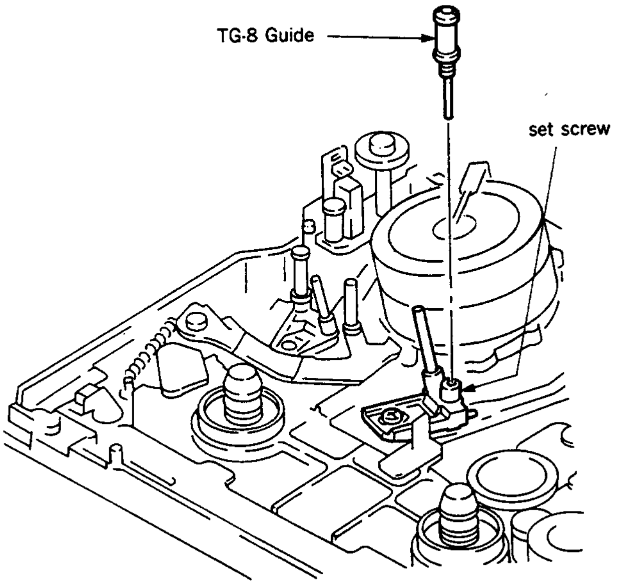


Fig. 1

Precautions for installation

①Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.

②Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

③Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

④Set the master block with the H10 stamped mark upward, then place it against the TG-8 guide from the direction shown in the figure, and tighten the set screw until the upper flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3) (Tightening torque of set screw : 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1 kg•cm))

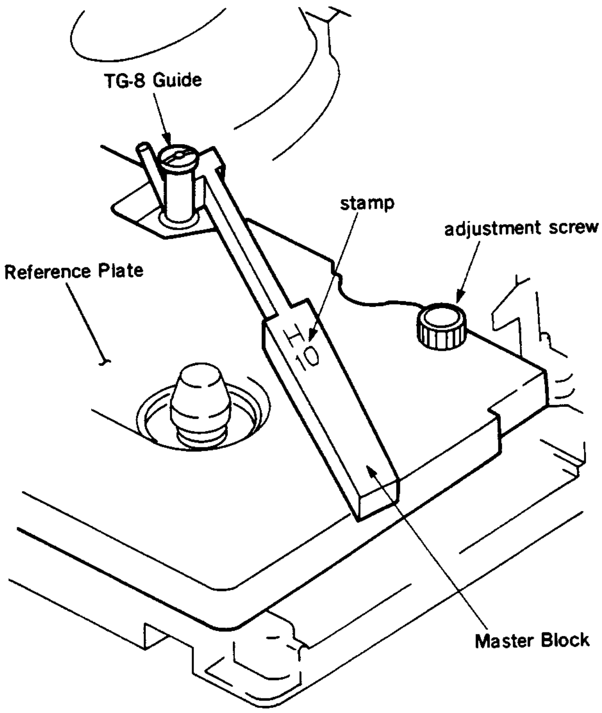


Fig. 2

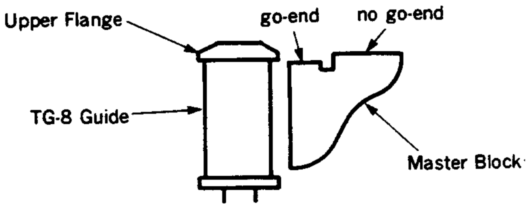


Fig. 3

[Adjustment after replacement]

(1) Perform TG-8 guide height adjustment according to sub-section 4-24.
(2) Perform tape run alignments of section 6.

4-26. SHUTTLE (LEFT) ASS'Y REPLACEMENT

Tools:

Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller: (SVRM-100, RM-V100, or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.

(2) Remove the stop washer, then remove the arm of the loading gear (left) ass'y from the shaft of the shuttle plate ass'y. (Fig. 1)

Note: Take care not to deform the arm of the loading gear (left) ass'y.

(3) Remove the screw, then remove the shuttle (left) ass'y and the shuttle plate ass'y. (Fig. 2)

Precaution for installation

①The tension regulator ass'y and shuttle (left) ass'y must be in the position shown in Fig. 3.

②Put the screw as shown in Fig. 4 when installing the shattle (left) ass'y to the shattle plate ass'y.

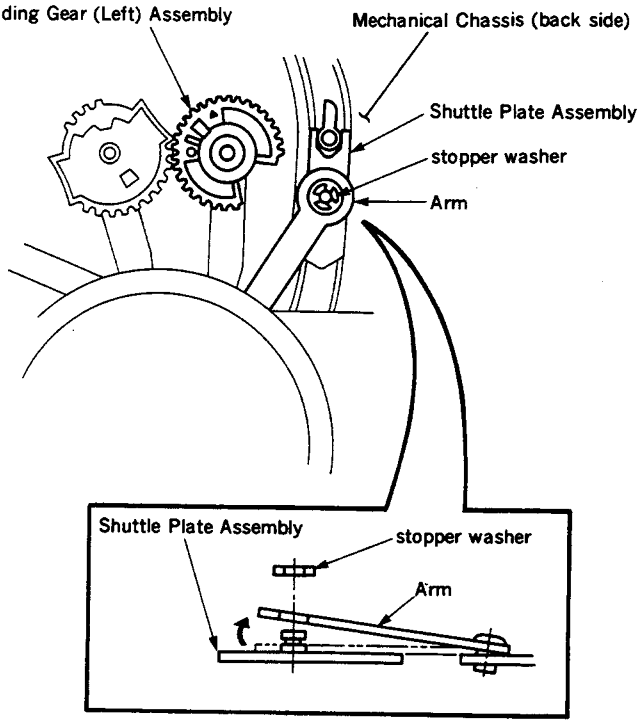

Loading Gear (Left) Assembly
Mechanical Chassis (back side)
Shuttle Plate Assembly
stopper washer
Arm
Shuttle Plate Assembly
stopper washer
Arm

Fig. 1

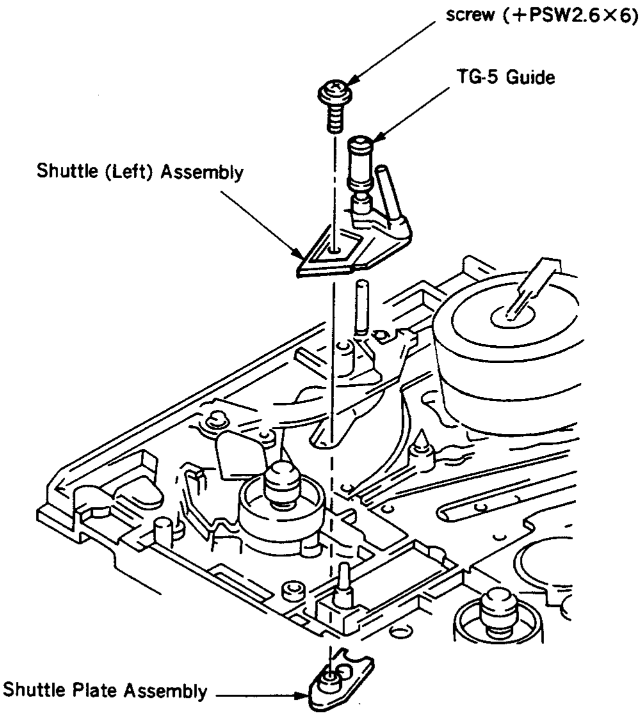

screw (+PSW2.6×6)
TG-5 Guide
Shuttle (Left) Assembly
Shuttle Plate Assembly

Fig. 2

[Adjustment after replacement]

TG-5 guide height adjustment

1. (1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
2. (2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
3. (3) Install the reference plate on the chassis. (Fig. 5) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
4. (4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
5. (5) While moving the stabilizer in the direction of the arrow, set the master block with the H10 stamped mark upward, then place it against the TG-5 guide from the direction shown in the figure. (Fig. 5)
6. (6) Using the guide adjustment screwdriver, turn the upper flange on the guide until the specification is satisfied. (Fig. 6)
7. (7) Perform tape run alignments of section 6.

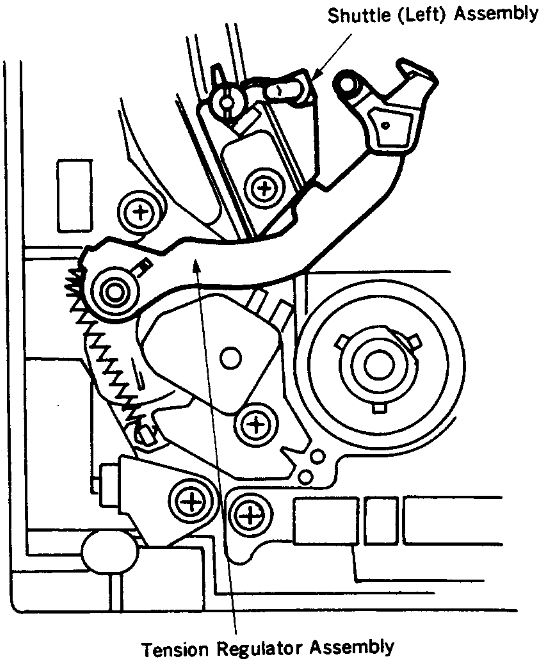

Shuttle (Left) Assembly
Tension Regulator Assembly

Fig. 3

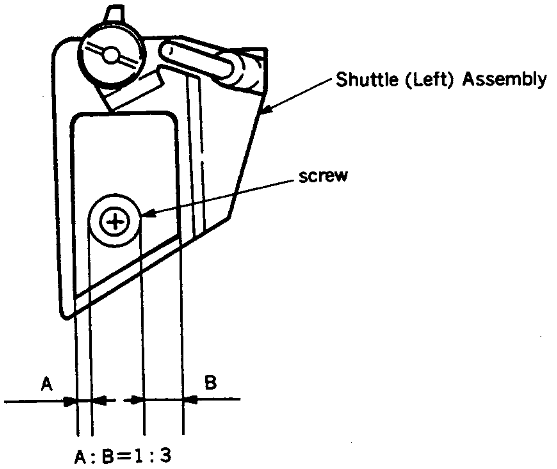

Shuttle (Left) Assembly
screw
A
B
A : B = 1 : 3

Fig. 4

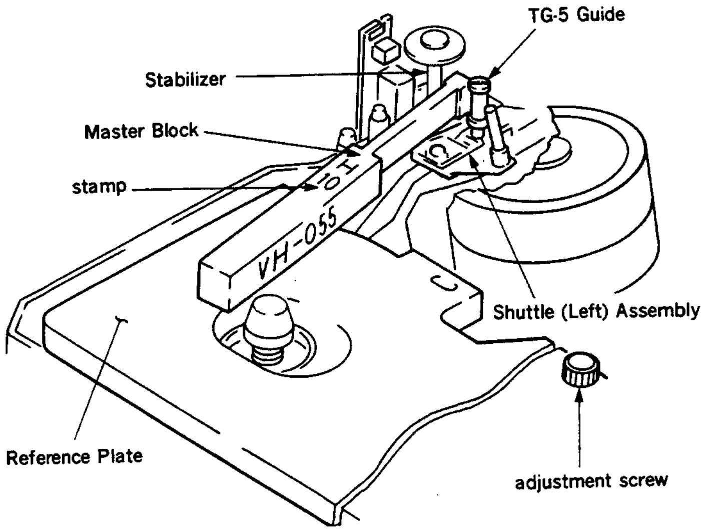

TG-5 Guide
Stabilizer
Master Block
stamp
VH-055
Shuttle (Left) Assembly
Reference Plate
adjustment screw

Fig. 5

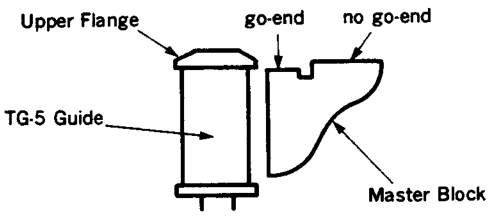

Upper Flange
go-end
no go-end
TG-5 Guide
Master Block

Fig. 6

Spec. :
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-27. TG-5 GUIDE REPLACEMENT

Tools:
Reference plate (J-6380-080-A)
Master block (J06380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89 mm)
Remote controller (SVRM-100, RM-V100, or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw with a hex wrench. (Fig. 1)
(3) Rotate the TG-5 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

Precaution for installation

①Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
②Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
③Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
④Set the master block with the H10 stamped mark upward, then place it against the TG-5 guide from the direction shown in the figure, and tighten the set screw untile the upper flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Tightening torque of set screw: 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1 kg•cm))

[**Adjustment after replacement**]
(1) Perform TG-5 guide height adjustment according to sub-section 4-26.
(2) Perform tape run alignments of section 6.

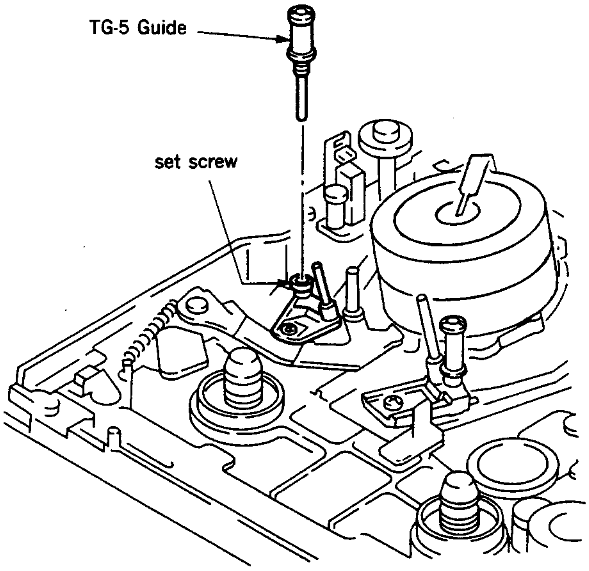


Fig. 1

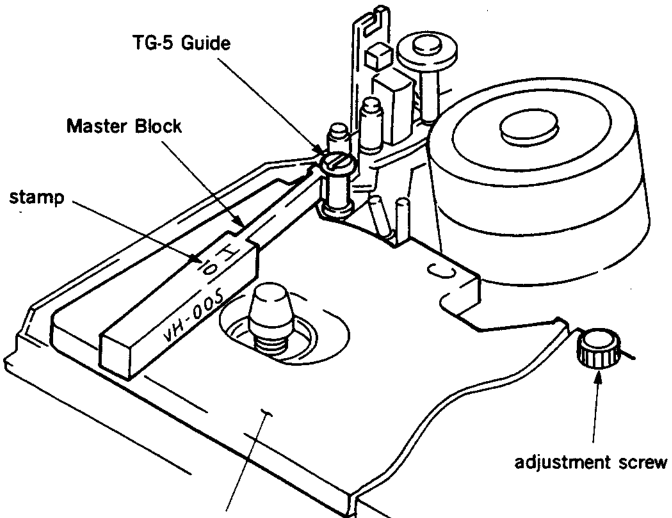


Fig. 2

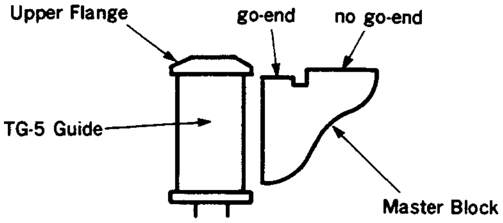


Fig. 3

4-28. SLIDE RAIL (R) REPLACEMENT

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the BC roller ass'y according to sub-section 4-3.
(3) Remove the shuttle (right) ass'y according to sub-section 4-24.
(4) Remove the screw, then remove the LE-80 board. (Fig. 1)
(5) Remove two screws, then remove the shuttle holder in the direction of arrow A. (Fig. 1)
(6) Remove claws **a**, **b** and **c** and also the two parts with the square hole on slide rail (R) from the chassis, then remove the slide rail (R). (Fig. 1)

Precautions for installation

①While moving the stabilizer in the direction of arrow B, fit claw **a** into the chassis, then insert projection **a** into the hole in the chassis. (Fig. 1)
②Next, align projections **b** and **c** with the holes in the chassis, then insert claws **b** and **c** and also the two parts with the square holes into the chassis. (Figs. 2 and 3)

[**Adjustment after replacement**]
(1) Perform tape run alignments of section 6.

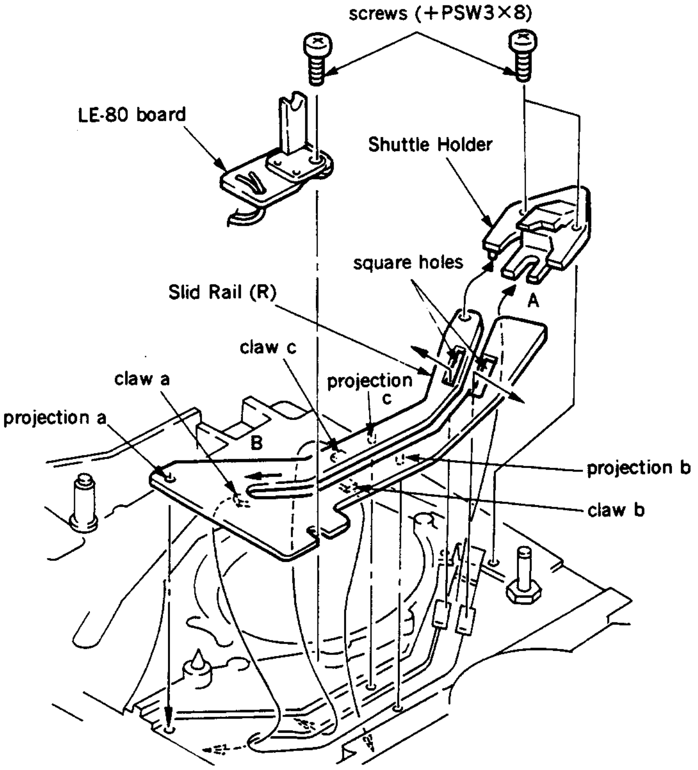

screws (+PSW3×8)
LE-80 board
Shuttle Holder
square holes
Slid Rail (R)
A
claw c
claw a
projection c
projection a
B
projection b
claw b

Fig. 1

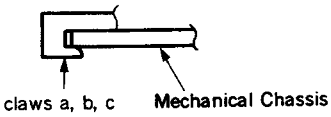

claws a, b, c
Mechanical Chassis

Fig. 2

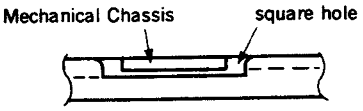

Mechanical Chassis
square hole

Fig. 3

4-29. SLIDE RAIL (L) REPLACEMENT

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the tension regulator ass'y and the STD ass'y according to sub-section 4-7.
(3) Remove the tape stabilizer ass'y according to sub-section 4-9.
(4) Remove the shuttle (left) ass'y according to sub-section 4-26.
(5) Remove two screws, then remove the shuttle holder in the direction of arrow A. (Fig. 1)
(6) Remove three claws **a**, **b** and **c** and two parts with the square hole on slide rail (L) from the chassis, then remove the slide rail (L). (Fig. 1)

Precautions for installation

①While moving the slide rail in the direction of arrow B, fit claw **a** into the chassis, then insert projection **a** into the hole in the chassis. (Fig. 1)

②Next, align projections **b** and **c** with the holes in the chassis, then insert claws **b** and **c** and also the two parts with the square hole into the chassis. (Figs. 2 and 3)

[**Adjustment after replacement**]
(1) Adjust the height of the TG-3 guide once again according to sub-section 4-9.
(2) Adjust the position of the tension regulator once again according to sub-section 4-7.
(3) Adjust the tape tension once again according to sub-section 6-2.
(4) Perform tape run alignments of section 6.

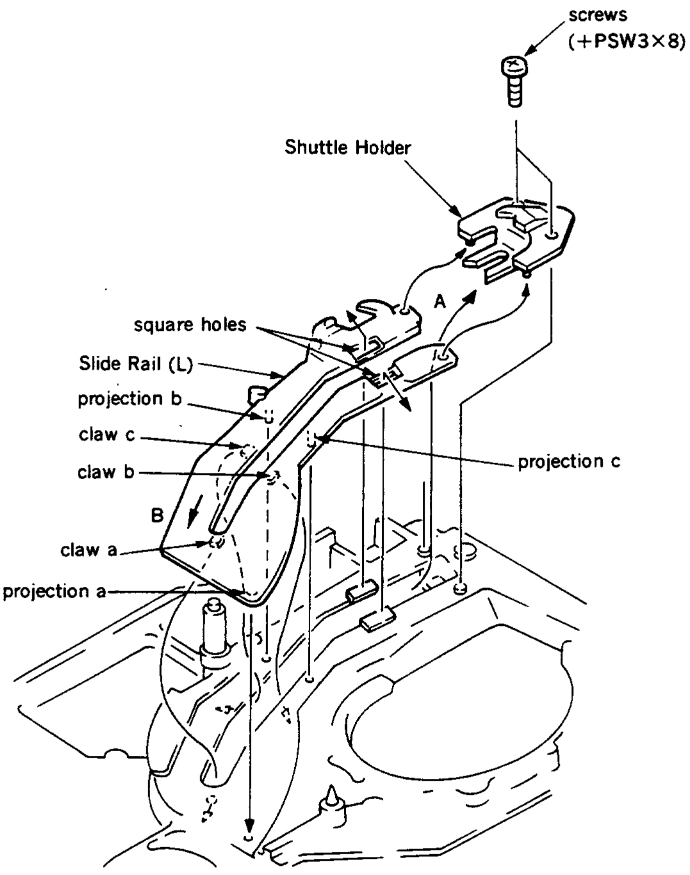

screws
(+PSW3×8)
Shuttle Holder
A
square holes
Slide Rail (L)
projection b
claw c
claw b
projection c
B
claw a
projection a

Fig. 1

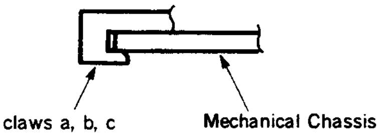

claws a, b, c
Mechanical Chassis

Fig. 2

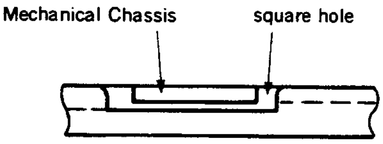

Mechanical Chassis
square hole

Fig. 3

4-30. CAPSTAN MOTOR REPLACEMENT

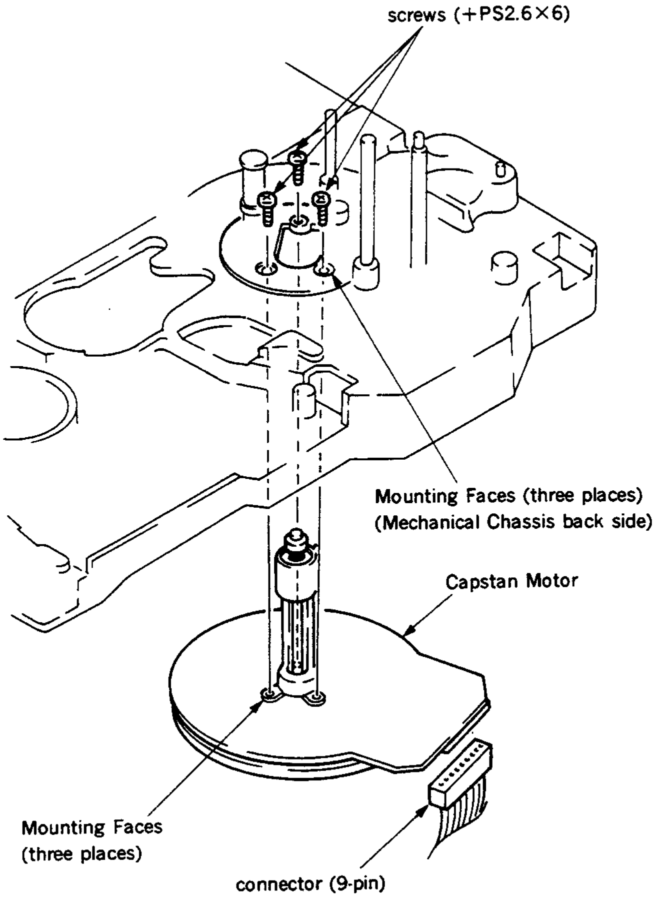
(1) Remove the drive gear ass'y according to subsection 4-20.
(2) Disconnect the 9-pin connector from the capstan motor board.
(3) Remove three screws, then remove the capstan motor.

Precaution for installation

①Clean the three mounting faces at the back of the chassis and the three mounting faces of the capstan motor with cleaning fluid.
②Take care not to damage the capstan shaft.

[**Adjustment after replacement**]

(1) Perform tape run alignments of section 6.


screws (+PS2.6×6)
Mounting Faces (three places)
(Mechanical Chassis back side)
Capstan Motor
Mounting Faces
(three places)
connector (9-pin)

4-31. PINCH SOLENOID ASS'Y REPLACEMENT

(1) Disconnect connector CN118 from the SS board, then remove the harness from the wiring clamp. (Fig. 1)
(2) Pull out the pinch roller block ass'y using the procedure in sub-section 4-12.
(3) Remove the screw, then remove the retainer and the poly-slider-washer. (Fig. 2)
(4) Remove two screws, then raise the pinch solenoid ass'y and remove it. (Fig. 2)

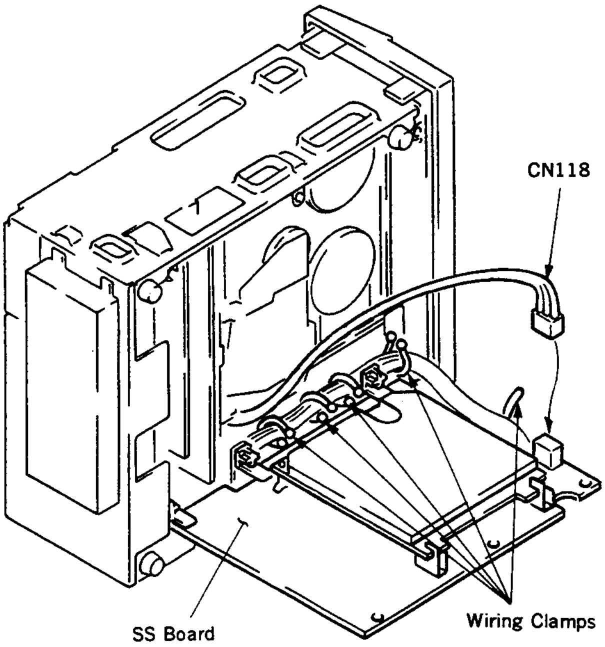

CN118
SS Board
Wiring Clamps

Fig. 1

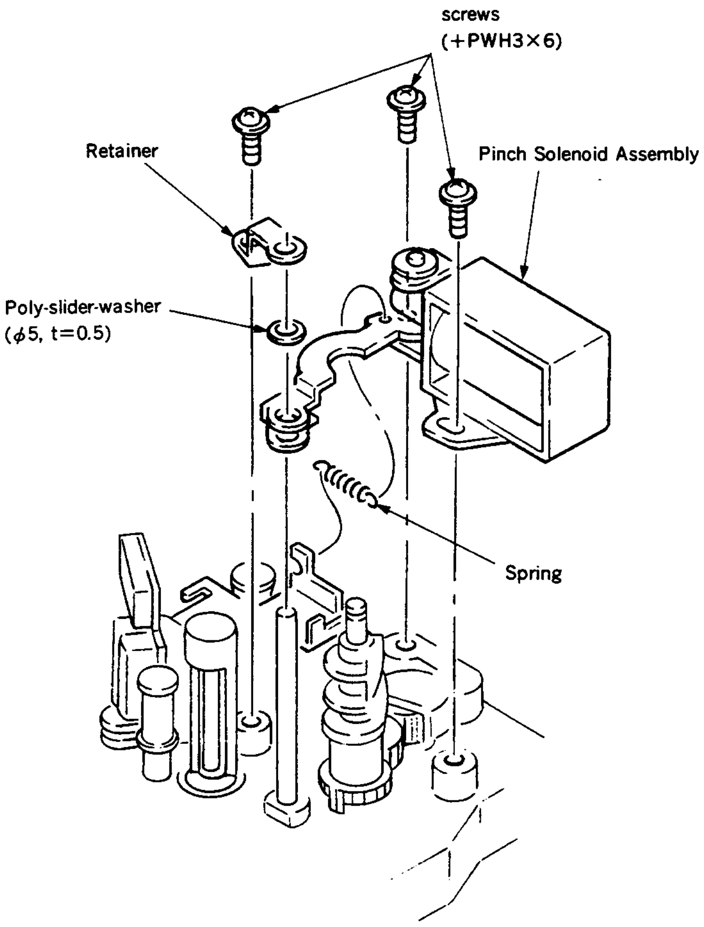

screws
(+PWH3×6)
Retainer
Pinch Solenoid Assembly
Poly-slider-washer
(ϕ5, t=0.5)
Spring

Fig. 2

(5) Remove two screws, then remove the solenoid from the solenoid base. (Fig. 3)

(6) Remove the stopper washer, then remove the solenoid pin and the pressure lever from the iron core. (Fig. 3)

Precautions for installation

①Align the longitudinal hole of the pinch solenoid ass'y with the boss of the mechanical chassis, then screw in the fixing screws but do not tighten them hard. (Fig. 4)

②Insert a flat blade screwdriver at the point indicated by A in the drawing, then turn it clockwise so that the pinch solenoid ass'y moves in the direction of the arrow as far as it will go, and tighten the two screws hard. (Fig. 4)

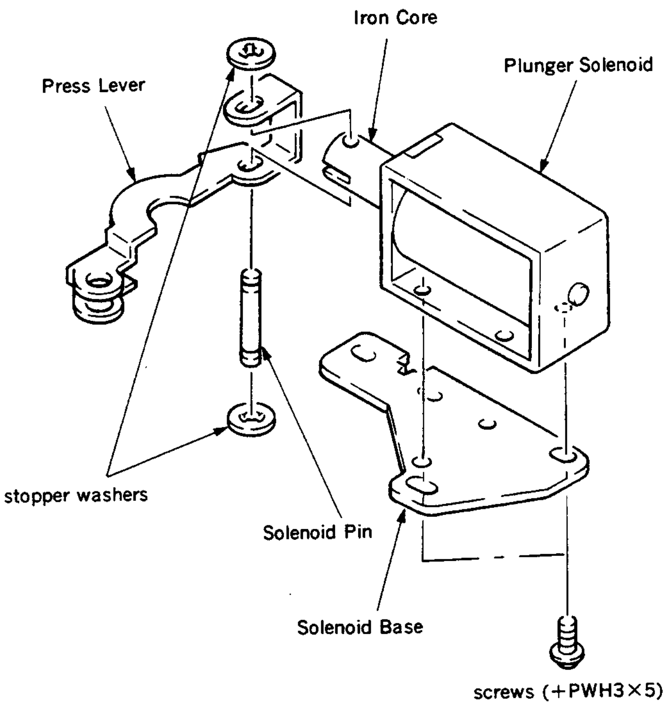

Iron Core
Plunger Solenoid
Press Lever
stopper washers
Solenoid Pin
Solenoid Base
screws (+PWH3×5)

Fig. 3

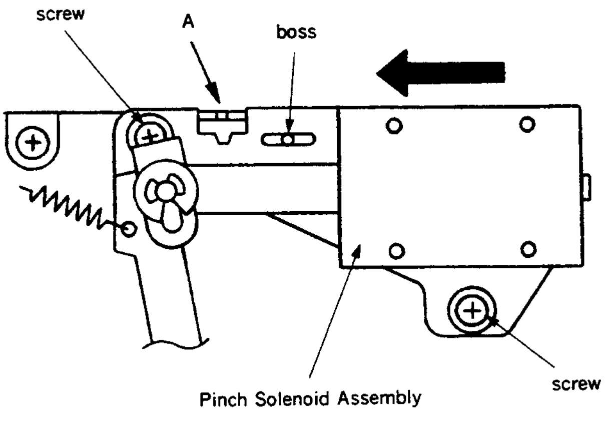

screw
A
boss
Pinch Solenoid Assembly
screw

Fig. 4

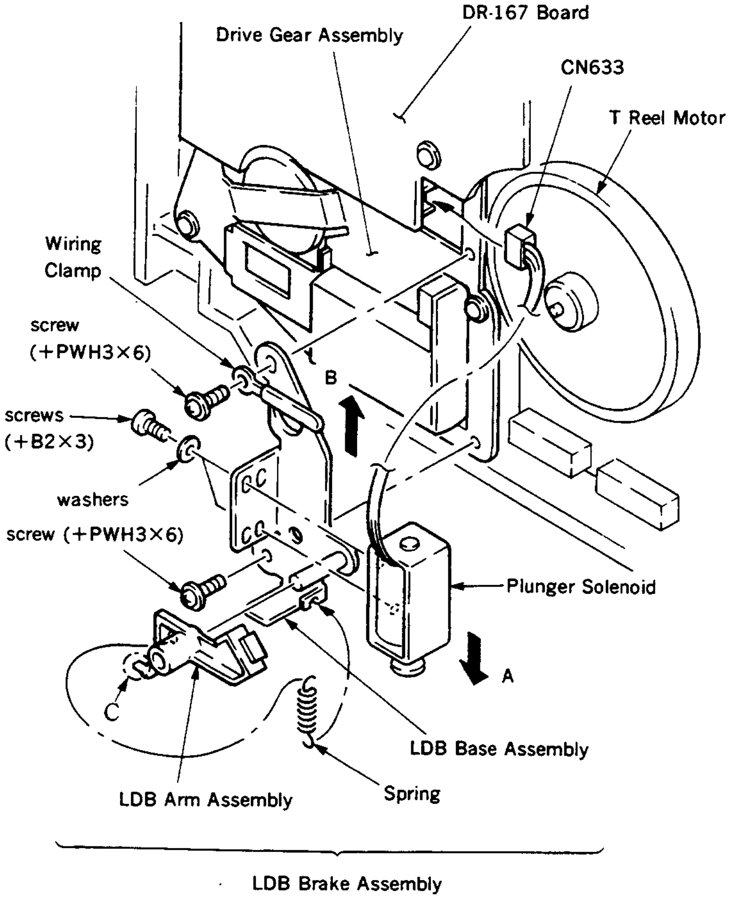
4-32. LDB BRAKE ASS'Y REPLACEMENT

Tool :
MOLYKOTE grease EM-30LG (J-6090-014-A)
or MOLYKOTE grease EM-30L : DOW CORNING Corp.

(1) Disconnect connector CN633 from the DR-167 board.
(2) Remove two screws and the wiring clamp, then remove the LDB brake ass'y.
(3) Remove two screws and the two washers, then remove the plunger solenoid from the LDB base ass'y.
(4) Remove the spring, then pull out the LDB arm ass'y from the LDB base ass'y.

Precautions for installation

①When installing the plunger solenoid on the LDB base ass'y first temporarily install it with the two screws and two washers, then move it fully in the direction of arrow A and tighten the screws hard.
②When installing the LDB brake ass'y on the drive gear ass'y, temporarily install it with the two screws and the wiring clamp, then move it fvlly in the direction of arrow B and tighten the screws hard.
③Fix the harness of the plunger solenoid with the wiring clamp in such a way that it does not touch the T reel motor.
④Apply a dab of MOLYKOTE grease to part C shown in the drawing after replacing the LDB arm ass'y with a new one.


DR-167 Board
Drive Gear Assembly
CN633
T Reel Motor
Wiring Clamp
screw (+PWH3×6)
B
screws (+B2×3)
washers
screw (+PWH3×6)
Plunger Solenoid
A
C
LDB Base Assembly
LDB Arm Assembly
Spring
LDB Brake Assembly

SECTION 5
TORQUE AND TAPE TENSION ALIGNMENTS

5-1. S/T REEL TABLE TORQUE ADJUSTMENT

Tools :
Torque gauge (H-7099-039-H)
Torque gauge adapter (H-7099-035-H)
Shorting clip

Adjustment Procedure :

(1) Remove the cassette compartment according to sub-section 2-2.
(2) Set No.1 and No.8 switches of DIP switch S101/SS board (H-9) to ON. (Fig. 1)
(3) Short TP304 (D-9) and E5 (C-9) on the SS board with a shorting clip. (Fig. 1)
(4) Press the cassette down switch with the finger, and while keeping it depressed, turn the POWER switch ON. (Fig. 2)
(5) Put the VTR in the PLAY mode.

S side reel table adjustment

(6) Stop the S side reel table with the hand, and install the torque meter. (Fig. 3)
(7) Adjust RV303/SS board (C-9) so that the value on the torque meter meet the required specification.

T side reel table adjustment

(8) Stop the T side reel table with the hand, and install the torque meter. (Fig. 3)
(9) Adjust RV304/SS board (C-9) so that the value on the torque meter meet the required specification.
(10) Upon completion of adjustments, remove the shorting clip.
(11) Set No.1 and No.8 switches of S101 to OFF.

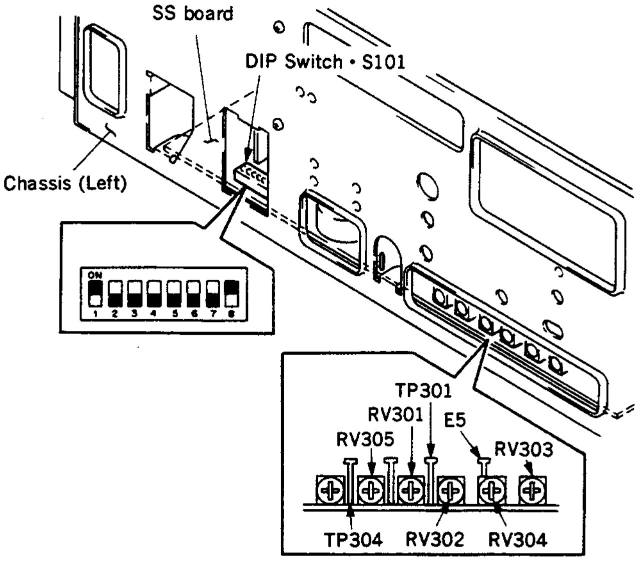

SS board
DIP Switch • S101
Chassis (Left)
ON
1 2 3 4 5 6 7 8
TP301
RV301
E5
RV305
RV303
TP304
RV302
RV304

Fig. 1

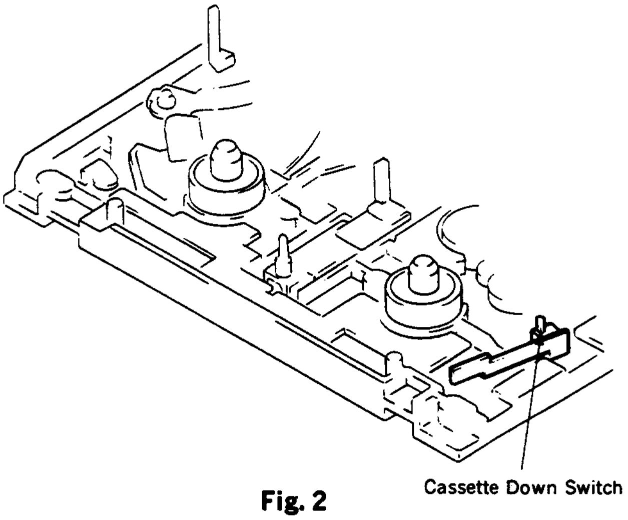

Cassette Down Switch

Fig. 2

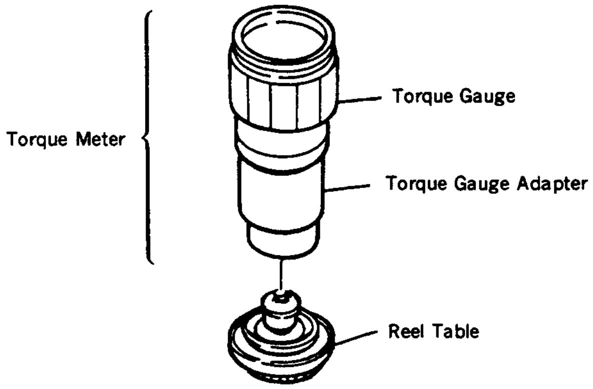

Torque Meter
Torque Gauge
Torque Gauge Adapter
Reel Table

Fig. 3

Spec. :
S/T Side $[147\pm5]\times10^{-4}$ N·m (150±5 g·cm)

5-2. TAPE TENSION ADJUSTMENT

Be sure to perform this adjustment after replacing a part of the tape run system, such as the drum or tension regulator. Also, be sure to check the tape tension when performing a periodic check.

Tools :

Tentelometer (T2-H7-UMC)

S-VHS cassette tape (T-120)

Adjustment Procedure :

(1) To prevent the tape from touching the tentelometer, rotate the tape stabilizer in the direction of the arrow until it strikes the chassis (left), then insert the bamboo skewer, or the like, at point "a" shown in the figure, and fix it in place. (Fig. 1)

(2) Insert a cassette tape (T-120) in the VTR, then put the VTR into the PLAY mode.

(3) Install the tentelometer between the TG-3 guide and the TG-5 guide. (Fig. 1)

(4) Adjust RV301/SS board (D-9) so that the value on the tentelometer meet the required specification 1.

(5) Enter the SEARCH REV mode.

(6) Adjust RV302/SS board (C-9) so that the value on the tentelometer meet the required specification 2.

(7) Enter the PAUSE mode.

(8) Adjust RV305/SS board (D-9) so that the value on the tentelometer meet the required specification 3.

(9) Confirm that each of the tape tensions meet the required specification 1 and 3.
During PLAY mode, tape tension required as Spec. 1, and PAUSE mode, tape tension required as Spec. 3.

(10) Confirm that each of the tape tensions meet the required specification 2 and 3.
During SEARCH REV mode, tape tension required as Spec. 2, and PAUSE mode, tape tension required as Spec. 3.

(11) Remove the tentelometer and bamboo skewer, then press the EJECT button and remove the cassette tape.

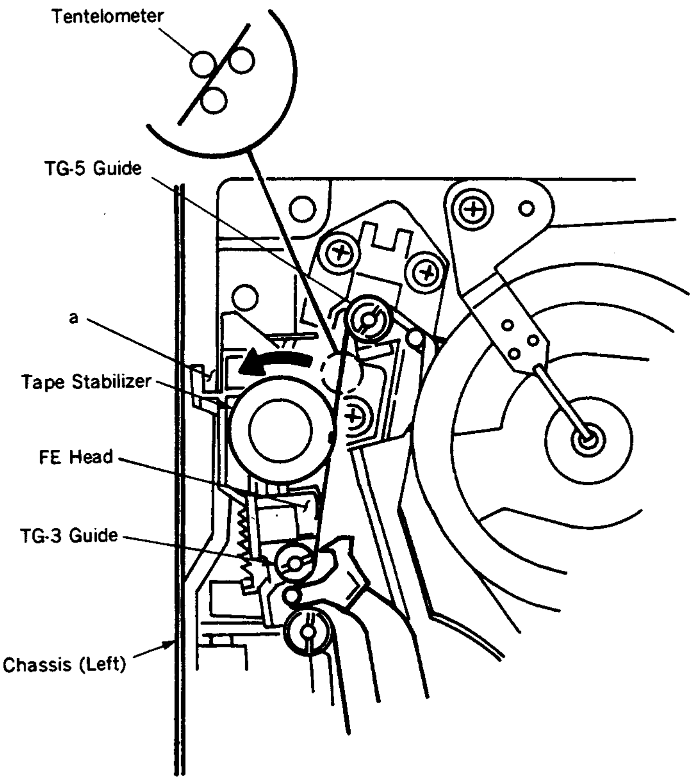


Fig. 1

Spec. 1 : Tape tension in the PLAY mode
$[245\pm25]\times10^{-3}$ N (25±2.5 g)

Spec. 2 : Tape tension in the SEARCH REV mode
$[392\pm25]\times10^{-3}$ N (40±2.5 g)

Spec. 3 : Tape tension in the PAUSE mode
$[216\pm20]\times10^{-3}$ N (22±2 g)

SECTION 6
TAPE RUN ALIGNMENTS

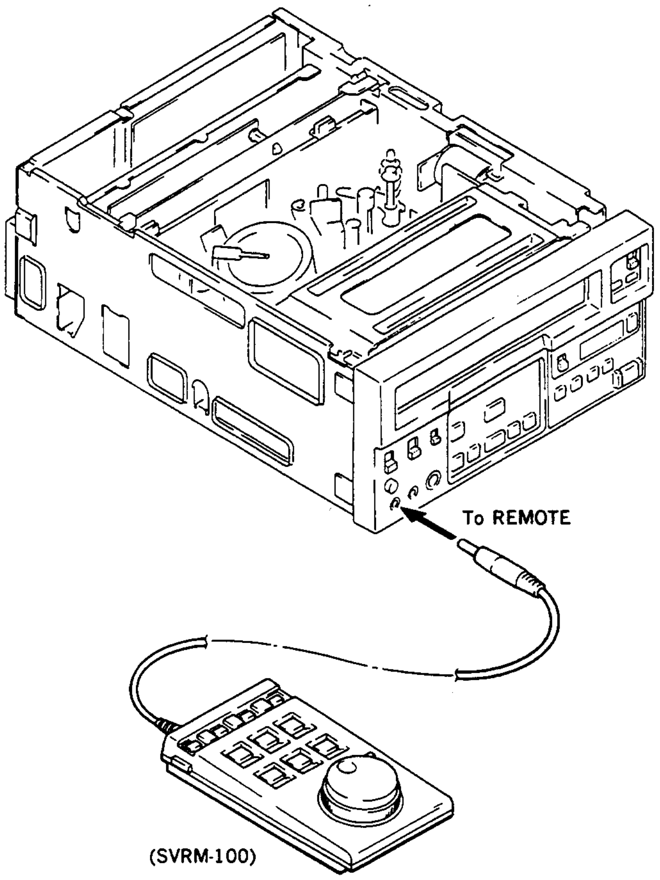
The tape run system has been adjusted before leaving the factory. If a part in the transport is replaced, therefore, the new part should be adjusted carefully to ensure that the tape transport is stable.
This section covers the entire adjustment procedure from coarse adjustment to fine adjustment.
Before commencing adjustment, remove the top panel and the U case of the VTR.

[Adjustment preparations]

1) Remote controller

Obtain remote controller RM-V100, RM-V200, or SVRM-100 to operate the VTR.
(When remote controller is not available, use function buttons of VTR.)

Connecting the remote controller

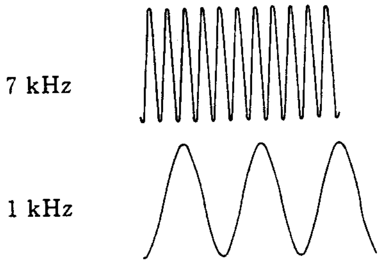


SVRM-100, RM-V100, or RM-V200

2) **Equipment and tool**

- Oscilloscope
- Tentelometer, T2-H7-UMC
- Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
- Small adjustment mirror (J-6080-840-A)
- X value adjustment tool (J-6380-710-A)
- X value adjustment tool connecting cable (See sub-section 6-9) (Must be provided by the service side.)
- RP extension tool (J-6381-370-A)
- S-VHS cassette tapes, T-160 and T-120
- Alignment tape, JVC-MH-2 (H-7099-052-H)
- Alignment tape, KRV-4821PSA (8-192-602-48)
- Alignment tape, KRV-45HPS (Pending)

Signals recorded on the alignment tape

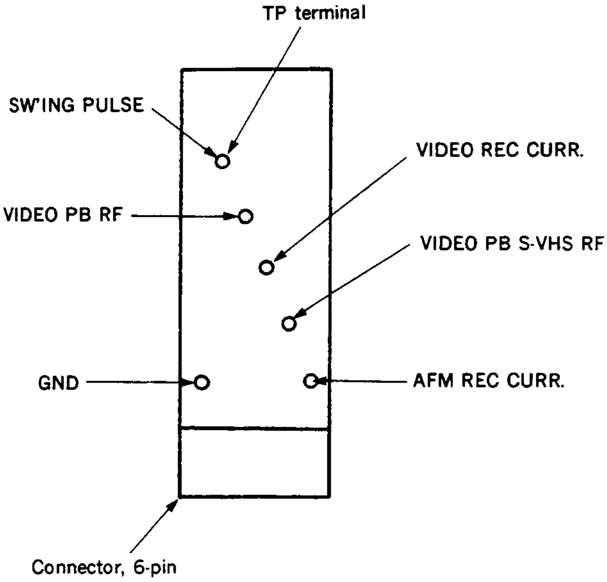
Name (Part No.)	Recording mode	Signals recorded on the tape	
		Video area	Audio area
JVC-MH-2 (H-7099-052-H)	SP	• Stairstep 10 min • No signal 5 min • Color bars 10 min • RF sweep 3 min Markers: 2.0 MHz 4.0 MHz 5.0 MHz	• 7 kHz 10 min • 3 kHz 5 min • 1 kHz (0 dB) 10 min • No signal 3 min
KRV-4821PSA (8-192-602-48)	SP	• 1 MHz (CH-1 only) • 1 V blanking every 60 V } 120 min	• 7 kHz 120 min • 1 kHz 120 min } MIX 
KRV-45HPS (S-VHS) (Pending)	SP	• Color bars 170 min	• Normal audio 7 kHz 15 s, 400 Hz 15 s (alternatery) • Hi-Fi audio 400 Hz (stereo)

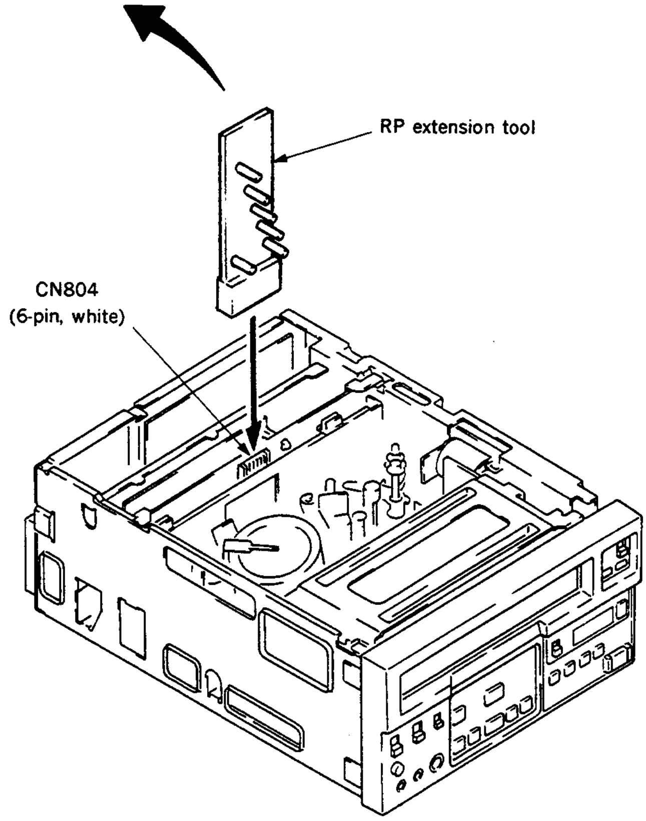
RP extension tool

This extension tool is used to take off the signal output from the check connector CN804 on the RP board so as to enable it to be connected easily to a probe.
It is intended to be inserted into connector CN804.

CN804 output signal

Pin No.	Output Signal
1	AFM REC CURRENT
2	S-VHS • VIDEO PB RF OUT
3	VIDEO REC CURRENT
4	VHS • VIDEO PB RF OUT
5	RF SWITCHING PULSE
6	GND

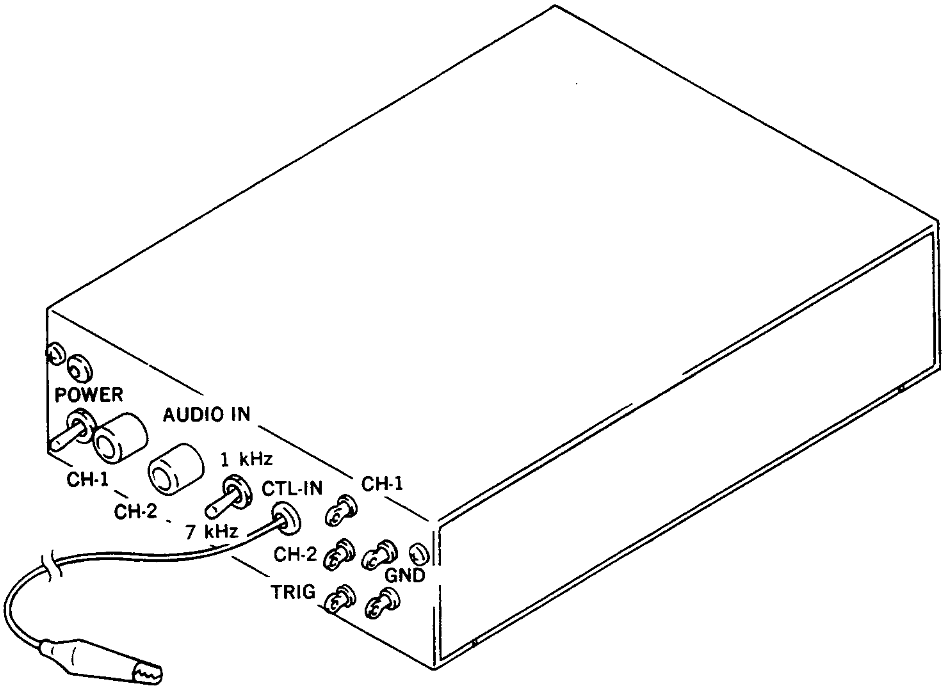

TP terminal
SW'ING PULSE
VIDEO REC CURR.
VIDEO PB RF
VIDEO PB S-VHS RF
GND
AFM REC CURR.
Connector, 6-pin


RP extension tool
CN804
(6-pin, white)

X value adjustment tool

This tool is used when adjusting the height of the audio head, the azimuth, zenith, head-to-tape contact and the X value (position of audio head).
Power is supplied from two internal dry batteries (9 V).
When replacing the dry batteries, remove four screws at the bottom, and open the bottom plate of the tool.

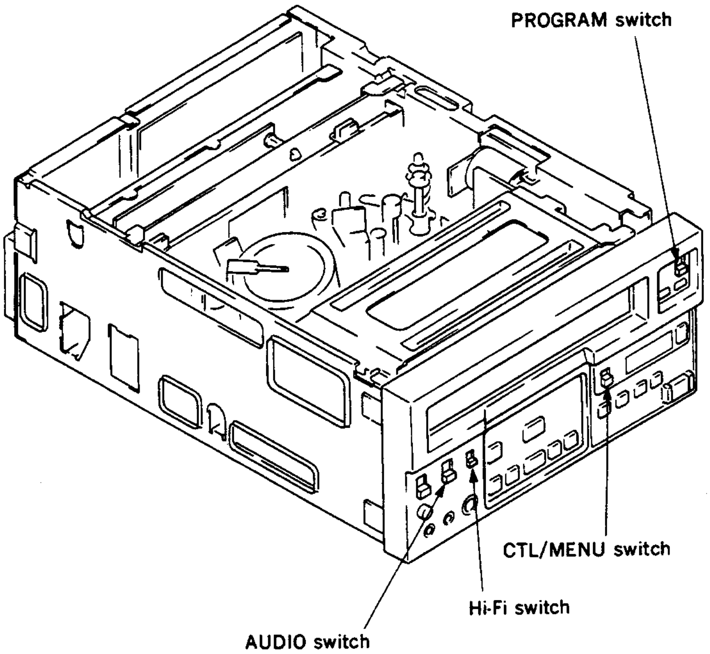
Note:
The batteries will run down quickly if the POWER switch of the tool is left switched ON.


POWER
AUDIO IN
CH-1
CH-2
1 kHz
7 kHz
CTL-IN
CH-1
CH-2
GND
TRIG

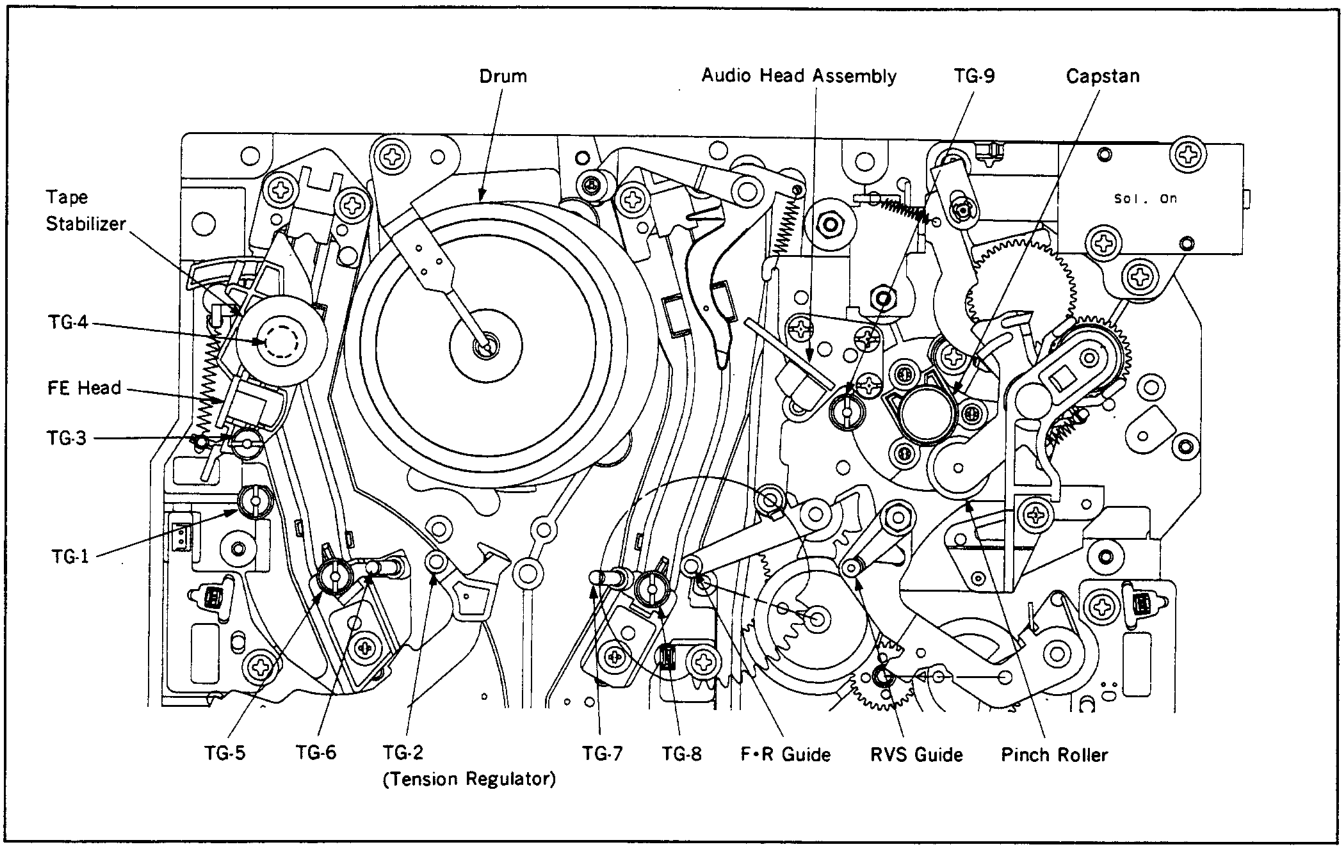
X value adjustment tool

3) Switch setting
Set the switches of the frontpanel as follow.

Select Switch	Setting Position
PROGRAM	OFF
CTL/MENU	CTL
Hi-Fi	OFF
AUDIO	NORM

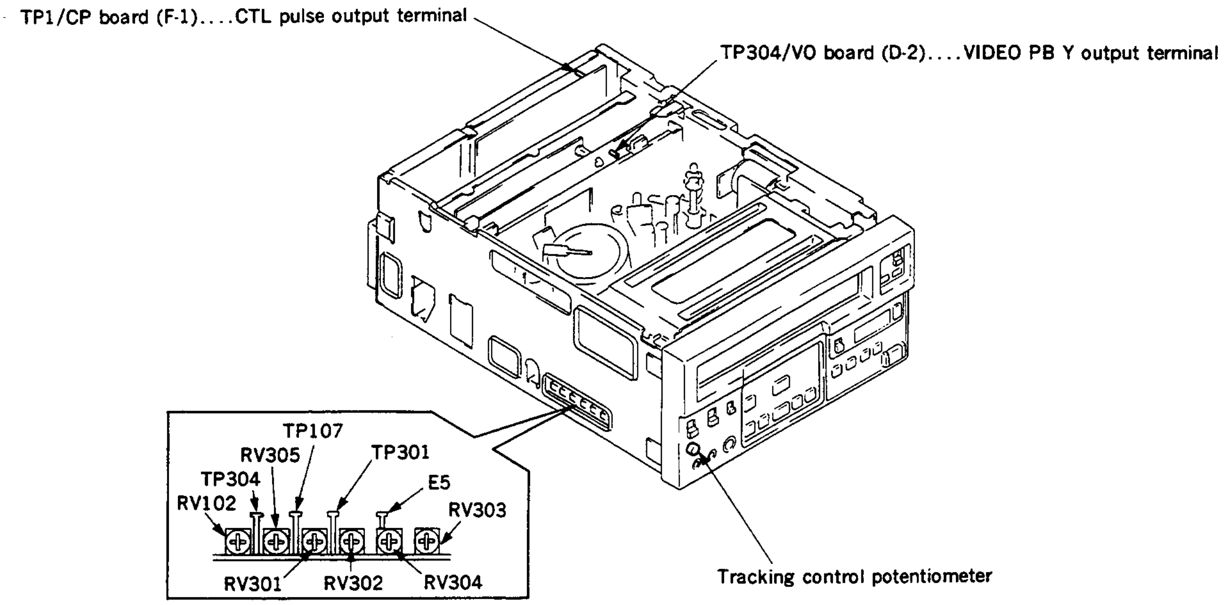

PROGRAM switch
CTL/MENU switch
Hi-Fi switch
AUDIO switch

[**Tape guide layout drawing**]


Drum
Audio Head Assembly
TG-9
Capstan
Tape Stabilizer
TG-4
FE Head
TG-3
TG-1
Sol. on
TG-5
TG-6
TG-2 (Tension Regulator)
TG-7
TG-8
F•R Guide
RVS Guide
Pinch Roller

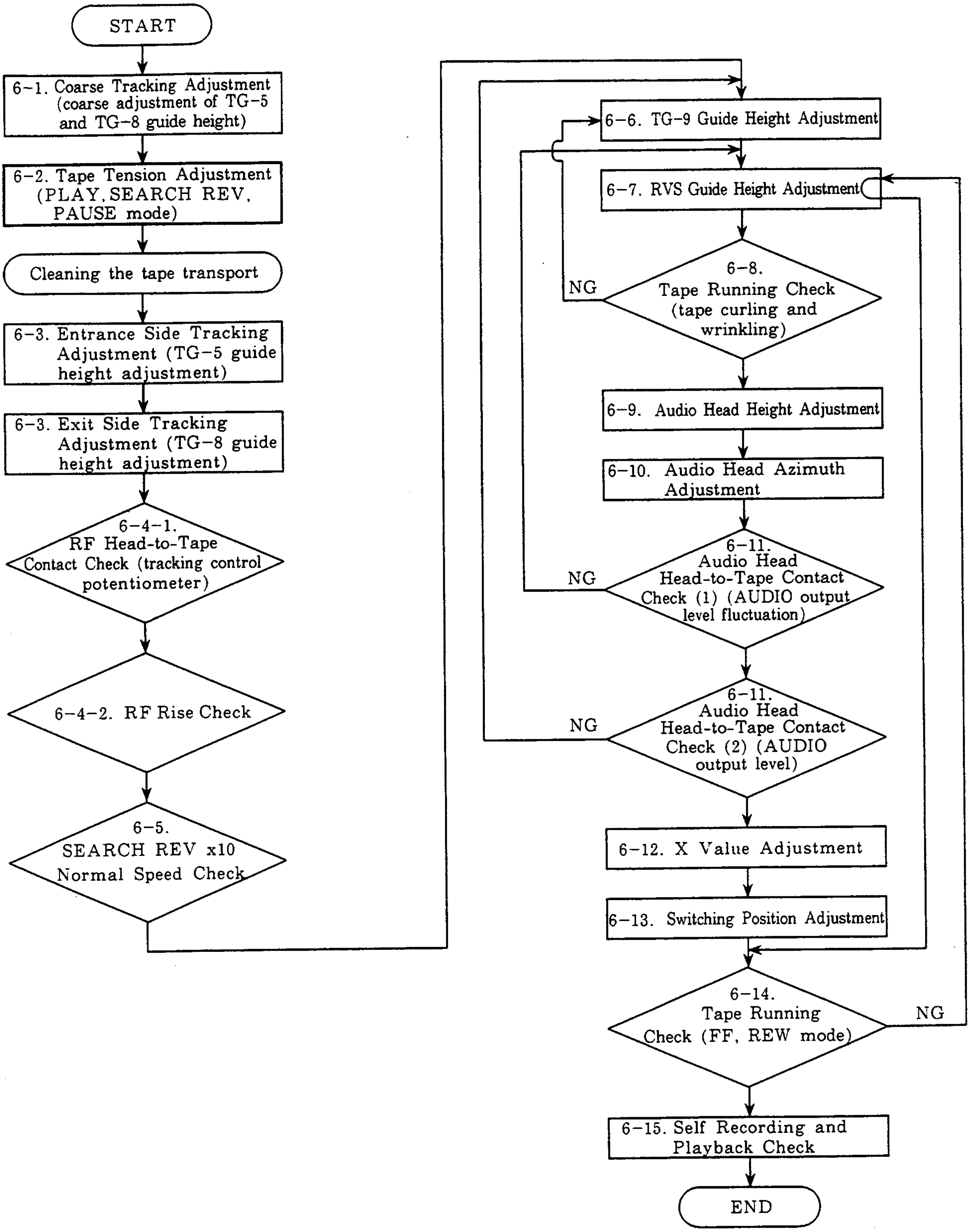
[**Position of potentiometers and TP terminals**]

The positions of the adjustment potentiometers and TP terminals are shown in the figure below.
(The figure below shows the VTR with the top panel and U case removed.)


TP1/CP board (F-1)....CTL pulse output terminal
TP304/VO board (D-2)....VIDEO PB Y output terminal
TP107
RV305
TP301
TP304
E5
RV102
RV303
RV301
RV302
RV304
Tracking control potentiometer

- RV301....PLAY mode tape tension adjustment potentiometer
- RV302....Search REV mode tape tension adjustment potentiometer
- RV305....PAUSE mode tape tension adjustment potentiometer
- RV102....Switching position adjustment potentimeter

[**Adjustment Flow Chart**]


START
6-1. Coarse Tracking Adjustment (coarse adjustment of TG-5 and TG-8 guide height)
6-2. Tape Tension Adjustment (PLAY, SEARCH REV, PAUSE mode)
Cleaning the tape transport
6-3. Entrance Side Tracking Adjustment (TG-5 guide height adjustment)
6-3. Exit Side Tracking Adjustment (TG-8 guide height adjustment)
6-4-1. RF Head-to-Tape Contact Check (tracking control potentiometer)
6-4-2. RF Rise Check
6-5. SEARCH REV x10 Normal Speed Check
6-6. TG-9 Guide Height Adjustment
6-7. RVS Guide Height Adjustment
NG
6-8. Tape Running Check (tape curling and wrinkling)
6-9. Audio Head Height Adjustment
6-10. Audio Head Azimuth Adjustment
NG
6-11. Audio Head Head-to-Tape Contact Check (1) (AUDIO output level fluctuation)
NG
6-11. Audio Head Head-to-Tape Contact Check (2) (AUDIO output level)
6-12. X Value Adjustment
6-13. Switching Position Adjustment
6-14. Tape Running Check (FF, REW mode)
NG
6-15. Self Recording and Playback Check
END

6-1. COARSE TRACKING ADJUSTMENT

Tools:

Oscilloscope
RP extension tool (J-6381-370-A)
Alignment tape (KRV-4821PSA)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)

Adjustment Procedure:

(1) Connect the oscilloscope as follows.
    CH-1: VIDEO PB RF terminal/RP extension tool
    TRIG: SW'ING PULSE terminal/RP extension tool
    GND: GND terminal/RP extension tool
(2) Playback the alignment tape.
(3) Turn the tracking control potentiometer on the front panel until the center part of the RF waveform is maximum. (Fig. 2)
(4) Turn the upper flange of the TG-5 guide until the RF waveform at the entrance side is virtually flat. (Fig. 3)
(5) Turn the upper flange of the TG-8 guide until the RF waveform at the exit side is virtually flat. (Fig. 4)
(6) Turn the tracking control potentiometer until the center part of the RF waveform is maximum.
(7) Press the EJECT button, and remove the alignment tape.

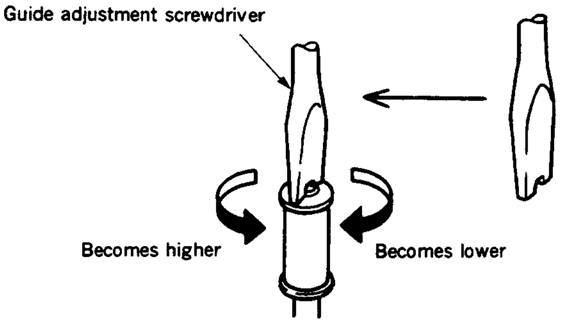

Guide adjustment screwdriver
Becomes higher
Becomes lower

Fig. 1 Tape Guide Height Adjustment Method.

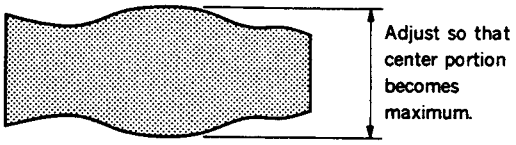

Adjust so that center portion becomes maximum.

Fig. 2

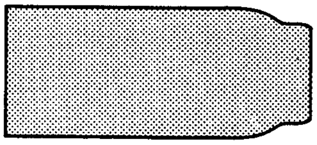


Fig. 3

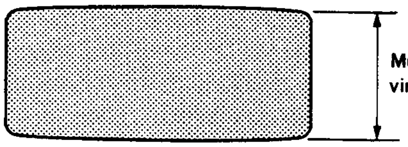

Must be virtually flat

Fig. 4

6-2. TAPE TENSION ADJUSTMENT

Tools :
Tentelometer (T2-H7-UMC)
S-VHS cassette tape (T-120)

Adjustment Procedure :

(1) To prevent the tape from touching the tentelometer, rotate the tape stabilizer in the direction of the arrow until it strikes the chassis (left), then insert the bamboo skewer, or the like, at point "a" shown in the figure, and fix it in place. (Fig. 1)
(2) Insert a cassette tape (T-120) in the VTR, then put the VTR into the PLAY mode.
(3) Install the tentelometer between the TG-3 guide and the TG-5 guide. (Fig. 1)
(4) Adjust RV301/SS board (D-9) so that the value on the tentelometer meet the required specification 1.
(5) Enter the SEARCH REV mode.
(6) Adjust RV302/SS board (D-9) so that the value on the tentelometer meet the required specification 2.
(7) Enter the PAUSE mode.
(8) Adjust RV305/SS board (D-9) so that the value on the tentelometer meet the required specification 3.
(9) Confirm that each of the tape tensions meet the required specification 1 and 3. During PLAY mode, tape tension required as Spec. 1, and PAUSE mode, tape tension required as Spec. 3.
(10) Confirm that each of the tape tensions meet the required specifications 2 and 3. During SEARCH REV mode, tape tension required as Spec. 2, and PAUSE mode, tape tension required as Spec. 3.
(11) Remove the tentelometer and bamboo skewer, then press the EJECT button and remove the cassette tape.

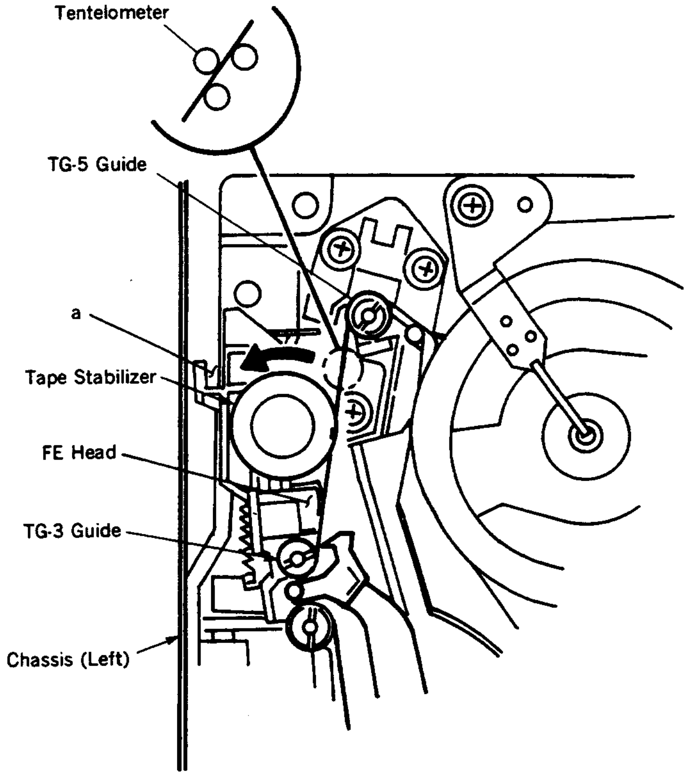


Fig. 1

Spec. 1 : Tape tension in the PLAY mode
$[245\pm25]\times10^{-3}$ N (25±2.5 g)

Spec. 2 : Tape tension in the SEARCH REV mode
$[392\pm25]\times10^{-3}$ N (40±2.5 g)

Spec. 3 : Tape tension in the PAUSE mode
$[216\pm20]\times10^{-3}$ N (22±2 g)

6-3. TRACKING ADJUSTMENT

Tools:
Oscilloscope
RP extension tool (J-6381-370-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Alignment tape (KRV-4821PSA)

Cleaning prior to adjustment:
Clean the following parts with a cleaning piece moistened with cleaning fluid.

- TG-1 to TG-9, RVS and F • R tape guides
- Audio head, FE head, capstan, pinch roller
- Rotary head, tape run face of upper and lower drums

[Note: Method of cleaning the rotary head]
Press the cleaning piece gently against the rotary head, then rotate the upper drum slowly in the counterclockwise direction with the fingers to clean the head.

Adjustment Procedure:

(1) Connect the oscilloscope as follows.
CH-1: VIDEO PB RF terminal/RP extension tool
TRIG: SW'ING PULSE terminal/RP extension tool
GND: GND terminal/RP extension tool

(2) Playback the alignment tape.

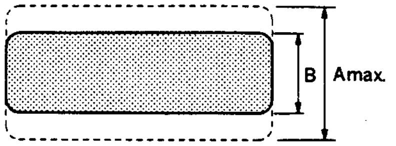
Entrance side adjustment:

(3) Turn the tracking control potentiometer on the front panel until the RF waveform is 70 to 80% of maximum. (Fig. 1)

(4) Turn the upper flange of the TG-5 guide clockwise until the RF waveform at the left hand side is as shown in Fig. 2.

(5) Turn the upper flange on the TG-5 guide in the counterclockwise direction until the RF waveform at the left hand side is flat. (Fig. 3)
Note:
- Complete the height adjustment of TG-5 with the guide turned counterclockwise.

(6) Turn the tracking control potentiometer on the front panel counterclockwise until the RF waveform is 70 to 80% of maximum, then confirm that the RF waveform at the left hand side is virtually flat. (Fig. 4)



$\frac{B}{Amax.}$ =0.7 to 0.8

Fig. 1

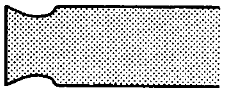


Fig. 2

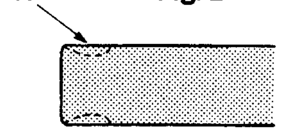
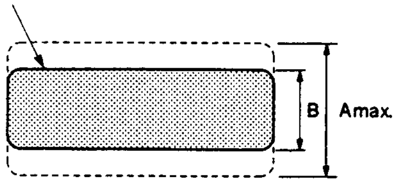


Fig. 3



Spec.:
RF waveform at entrance side must be virtually flat when $\frac{B}{Amax.}$ =0.7 to 0.8.

Fig. 4

Exit side adjustment :

(7) Turn the tracking control potentiometer on the front panel until the RF waveform is 70 to 80% of maximum. (Fig. 1)

(8) Turn the upper flange of the TG-8 guide clockwise until the RF waveform on the right hand side is as shown in Fig. 5.

(9) Turn the upper flange of the TG-8 guide counterclockwise until the RF waveform on the right hand side is Fig. 6.

Note :

- Complete the height adjustment of TG-8 with the guide turned counterclockwise.

(10) Confirm that the RF waveform on the right hand side is Fig. 6 when the mode is switched from STOP to PLAY.

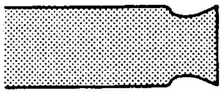
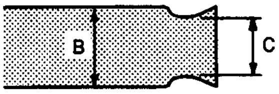


Fig. 5



$\frac{C}{B}$=0.85 to 0.95

Fig. 6

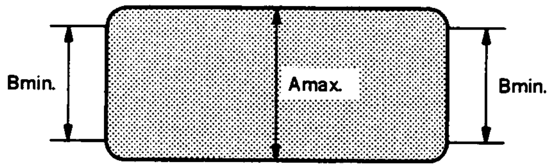
6-4. CHECKING AFTER TRACKING ADJUSTMENT

Tools:
Oscilloscope
RP extension tool (J-6381-370-A)
Alignment tape (KRV-4821PSA)

- Connect the oscilloscope as follows.
  CH-1: VIDEO PB RF terminal/RP extension tool
  TRIG: SW'ING PULSE terminal/RP extension tool
  GND: GND terminal/RP extension tool

6-4-1. RF Head-to-Tape Contact Check

(1) Playback the alignment tape.
(2) Turn the tracking control potentiometer on the front panel until the center of the RF waveform is maximum.
(3) Confirm that the RF waveform meet the specification.



Spec.: $\frac{\text{Bmin.}}{\text{Amax.}} \geq 0.8$

6-4-2. RF Rise Check

(1) Playback the alignment tape.
(2) Turn the tracking control potentiometer on the front panel until the center of the RF waveform becomes maximum.
(3) Put the VTR in each of the following modes in turn, and confirm that the rise time of the RF waveform meet the specification. (Fig. 1)
① SEARCH REV → PLAY
② SEARCH FWD → PLAY
③ STOP → PLAY
(4) Enter the SEARCH REV mode, and confirm that there is no missing of the RF waveform at the entrance side. (Fig. 2)

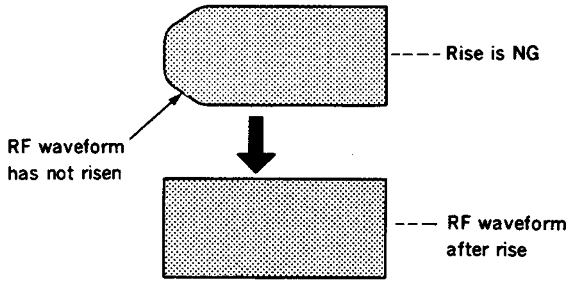


Fig. 1

Spec.:	RF rise time
① SEARCH REV → PLAY	Within 3 s
② SEARCH FWD → PLAY	Within 3 s
③ STOP → PLAY	Within 3 s

- The rise time is the time from when the RF waveform appears on the oscilloscope.

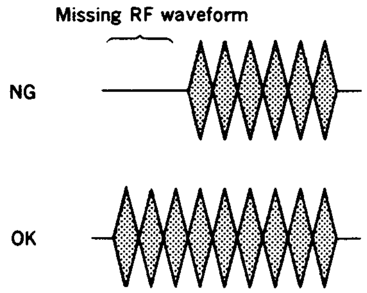


Fig. 2

6-5. SEARCH REV x10 NORMAL SPEED CHECK

Tools :

Oscilloscope
Alignment tape (KRV-45HPS)
RP extension tool (J-6381-370-A)
Remote controller (SVRM-100, RM-V100, or RM-V200)

Checking Procedure :

(1) Connect the oscilloscope as follows.
 CH-1 : VIDEO PB S-VHS RF terminal/RP extension tool
 TRIG : SW'ING PULSE terminal/RP extension tool
 GND : GND terminal/RP extension tool
(2) Load the alignment tape in the VTR.
(3) Using the remote controller, enter the SEARCH REV mode (x10 times normal speed), and play back the color bars that were recorded in the SP mode.
(4) Confirm that an RF waveform appears at SP1, SP2, EP1 and EP2. (Fig. 1) Also, confirm that an RF waveform appears at the entrance side. (Fig. 2) (Fig. 3)

If there is not appear the RF waveform.

Check the following points.

①Does the tape curl or become wrikled between the TG-5 guide, drum and the TG-8 guide ?
 If curling or wrinkling occurs → re-adjust the height of the TG-5 and TG-8 guides.

②Check the circuit between pin 23 of IC201 (D-2) and pin 2 of CN804 on the RP board.

③Confirm that the voltage input to pin 28 of IC201 on the RP board is between 2.15 and 2.7 V dc.

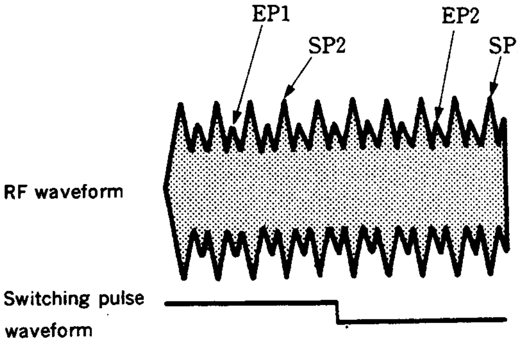


Fig. 1

Example-1 of NG

The EP1 waveform is not appear

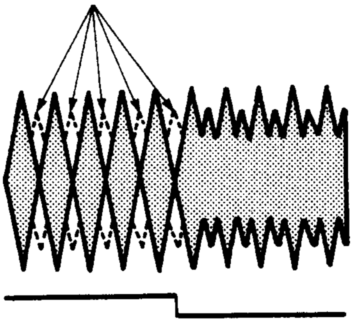


Fig. 2

Example-2 of NG

The EP waveform is not appear at the entrance side

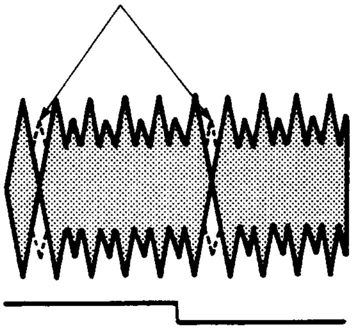


Fig. 3

6-6. TG-9 GUIDE HEIGHT ADJUSTMENT

Tools :

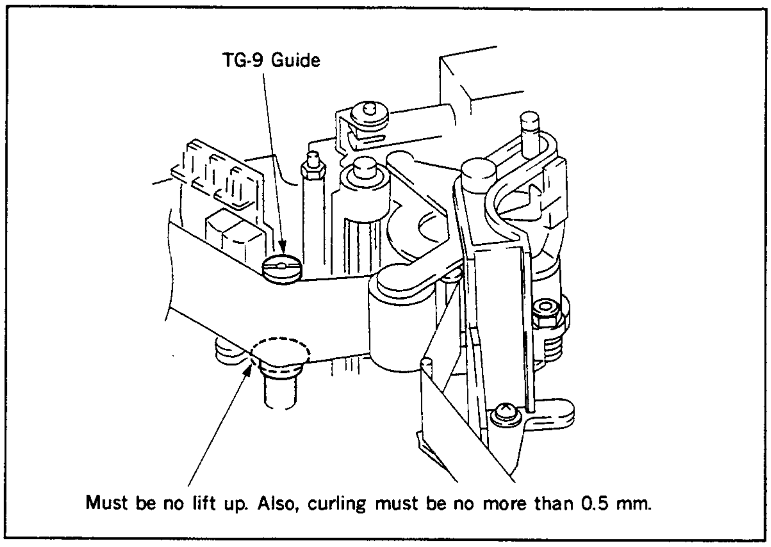
S-VHS cassette tape (T-160)

Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)

Adjustment Procedure :

(1) Insert a cassette tape (T-160) in the VTR, then put the VTR in the PLAY mode.

(2) Turn the upper flange of the TG-9 guide, and pass the tape along the lower flange.


TG-9 Guide
Must be no lift up. Also, curling must be no more than 0.5 mm.

6-7. RVS GUIDE HEIGHT ADJUSTMENT

Tools :

S-VHS cassette tape (T-160)

Box screwdriver (width 5.5 mm)

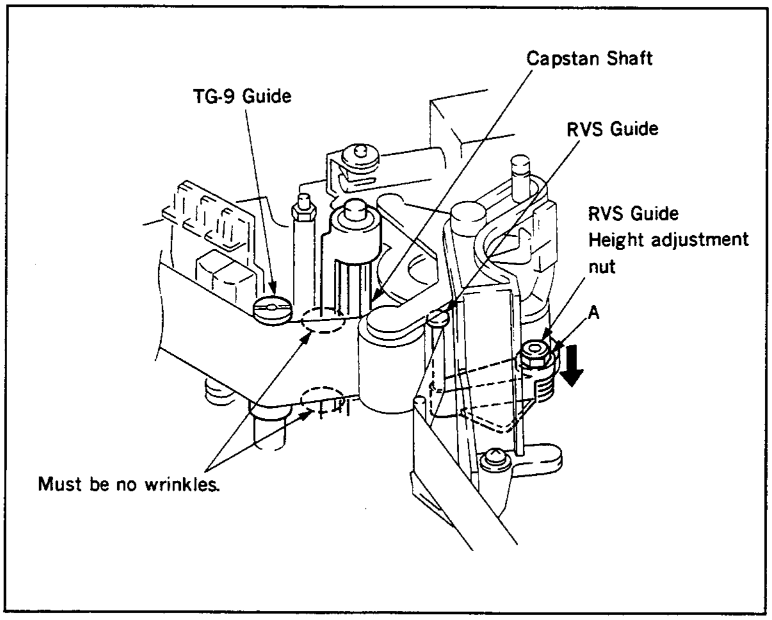
Adjustment Procedure :

(1) Enter the Search REV mode using the first 10 minutes or less of the tape.

(2) Turn the RVS guide height adjustment nut until wrinkling of the tape between the TG-9 guide and the capstan shaft that occurs when the VTR is switched from the search REV mode to the search FWD mode, or vice-versa, disappears in less than 3 seconds.

Direction of adjustment of RVS guide height adjustment nut

If the wrinkling of the tape decreases when part A indicated in the figure (bottom of adjustment nut) is pressed in the direction of the arrow, turn the RVS guide height adjustment nut clockwise. If the wrinkling increases, turn the nut counterclockwise.


Capstan Shaft
TG-9 Guide
RVS Guide
RVS Guide Height adjustment nut
A
Must be no wrinkles.

6-8. TAPE RUNNING CHECK (check to be performed subsequent to adjustments of sections 6-1 to 6-7)

Tool :
S-VHS cassette tape (T-160)

Checking Procedure :

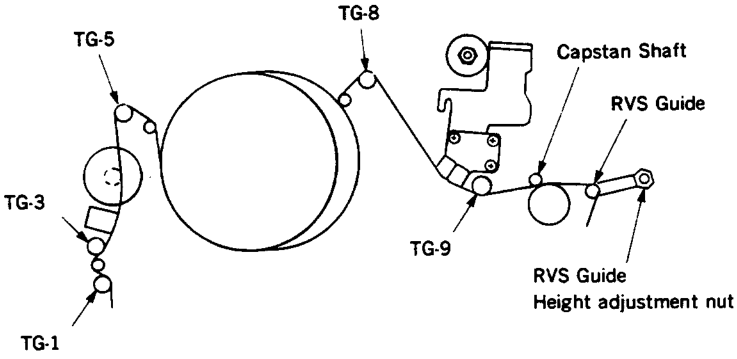
(1) Insert a cassette tape (T-160) in the VTR.

(2) Confirm that the curling of the tape at the TG-1, TG-3, TG-5, TG-8 and TG-9 guides in both the Search FWD and SEARCH REV modes meet the specification.

If the specification is not satisfied :

(3) Re-adjust the TG-9 and RVS guides height according to sub-sections 6-6 and 6-7.

(4) Check step (2).


TG-8
TG-5
Capstan Shaft
RVS Guide
TG-3
TG-9
RVS Guide
Height adjustment nut
TG-1

Spec. :
TG-1, TG-3, TG-5, TG-8, TG-9 Guides ...... Tape curling must be within 1 mm.

6-9. AUDIO HEAD HEIGHT ADJUSTMENT

Tools:

Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape (KRV-4821PSA or JVC-MH-2)
Box screwdriver (width 5.5 mm)
Connecting cables (two) (to be provided by the service side)....Fig. 1

Connecting the tool:

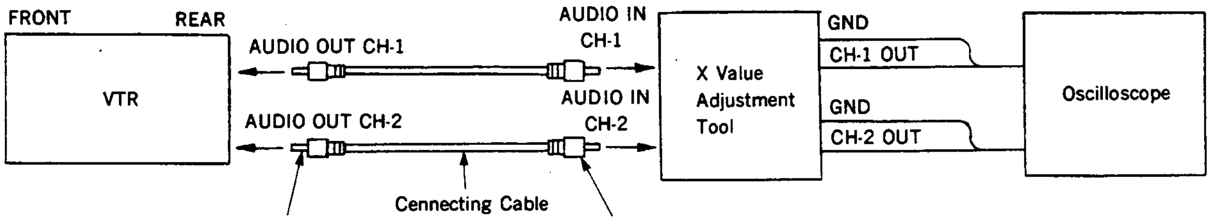

FRONT
REAR
VTR
AUDIO OUT CH-1
AUDIO OUT CH-2
AUDIO IN CH-1
AUDIO IN CH-2
X Value Adjustment Tool
GND
CH-1 OUT
GND
CH-2 OUT
Oscilloscope
Cennecting Cable
Phono Plug
Phono Plug

Fig. 1

Adjustment Procedure:

(1) Set the switch on the X value adjustment tool to the 1 kHz side.
(2) Turn the POWER switch of the X value adjustment tool ON.
(3) Playback the alignment tape (KRV-4821PSA). (When using JVC-MH-2 tape, playback the 1 kHz part.)
(4) Turn the audio head height adjustment nut until the level of both CH-1 and CH-2 is maximum. (Fig. 2, Fig. 3)

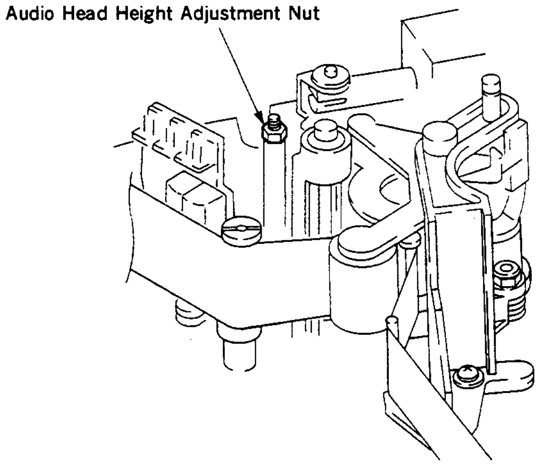

Audio Head Height Adjustment Nut

Fig. 2

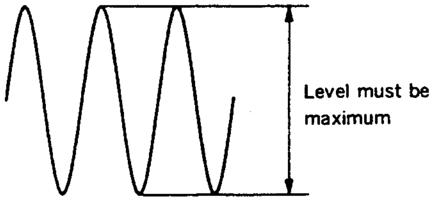

Level must be maximum

Fig. 3

6-10. AUDIO HEAD AZIMUTH ADJUSTMENT

Tools:
Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape (KRV-4821PSA or JVC-MH-2)
Connecting cables (two) (See sub-section 6-9.)

Connecting the tool: Same as sub-section 6-9

Adjustment Procedure:
(1) Set the switch on the X value adjustment tool to the 7 kHz side.
(2) Playback the alignment tape (KRV-4821PSA). (When using JVC-MH-2 tape, playback the 7 kHz part.)

Output level adjustment
(3) Turn the azimuth adjustment screw until the resurge waveform on the oscilloscope meet the specification 1. (Fig. 1 and Fig. 2)

Azimuth adjustment
(4) Turn the azimuth adjustment screw until the resurge waveform on the oscilloscope meet the specification 2. (Fig. 2)

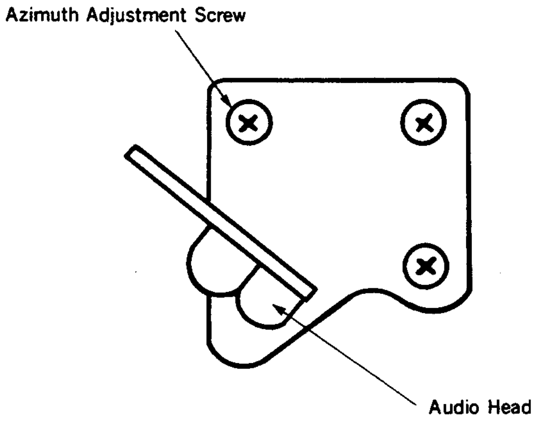


Fig. 1

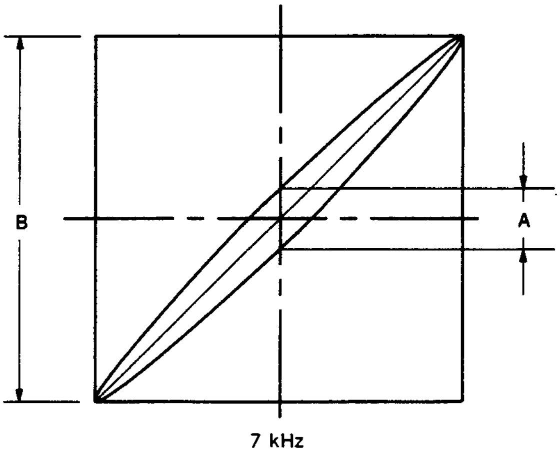


Fig. 2

Spec. 1:
B must be the maximum level.

Spec. 2:
A must be no more than 1 cm when level B is 6 cm.

6-11. AUDIO HEAD HEAD-TO-TAPE CONTACT CHECK

Tools:
Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape (KRV-4821PSA or JVC-MH-2)
Connecting cables (two) (See sub-section 6-9.)

Connecting the tool: Same as sub-section 6-9

Checking Procedure:

(1) Set the switch on the X value adjustment tool to the 7 kHz side.
(2) Playback the alignment tape (KRV-4821PSA). (When using JVC-MH-2 tape, playback the 7 kHz part.)

Level fluctuation check

(3) Confirm that the level fluctuation of both CH-1 and CH-2 meet the specification. (Fig. 1)

If the specification is not satisfied:

(4) Turn the TG-9 guide counterclockwise until the specification is satisfied. (Fig. 2) (Tape curling must be no more than 0.5 mm.)
(5) Return to sub-section 6-7 and repeat adjustment up to sub-section 6-10.
(6) Check step (4).

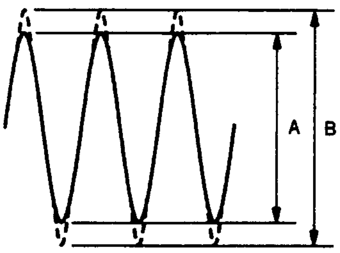
Output level check

(7) Press the top of the tape (AUDIO track part) as indicated by the arrow gently with the tip of the finger, and confirm that the increase in level conforms to the specification for both CH-1 and CH-2. (Fig. 2 and Fig. 3)

If the specification is not satisfied:

(8) Turn the zenith adjustment screw of the audio head 90° clockwise.
(9) Return to sub-section 6-6 and repeat adjustment up to sub-section 6-10.
(10) Check steps (3) and (7).

Level Fluctuation



Spec.: A≥0.9B

Fig. 1

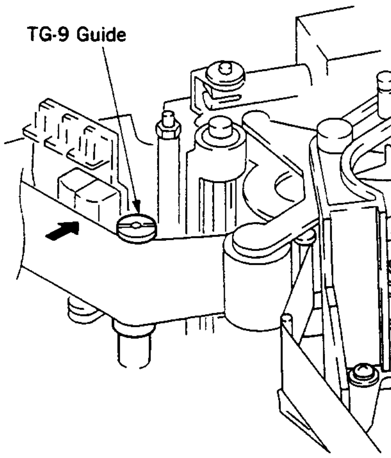
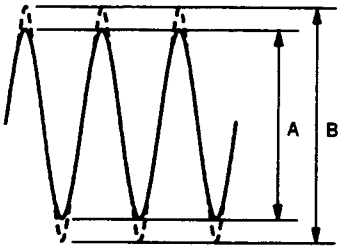


Fig. 2

Output Level



Spec.: B≤1.2A

A: Initial level
B: Level when the tape is pressed with the finger.

Fig. 3

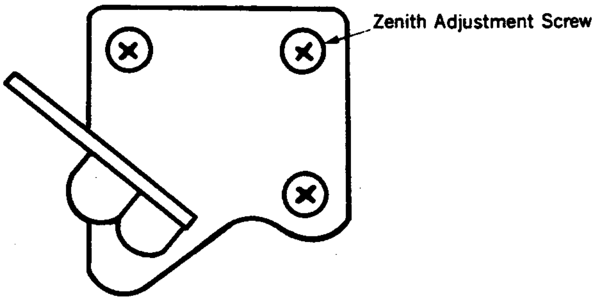


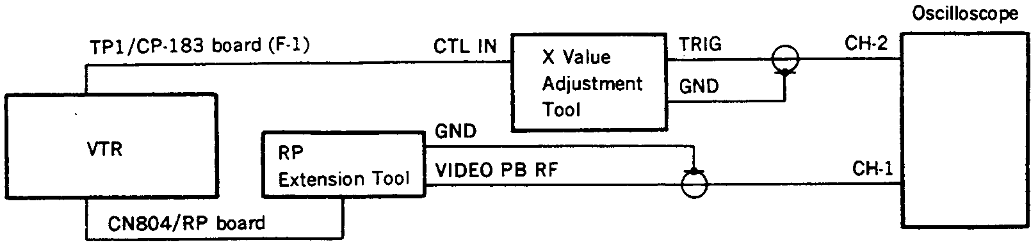
Fig. 4

6-12. X VALUE ADJUSTMENT (AUDIO HEAD POSITION ADJUSTMENT)

Tools :

Oscilloscope
X value adjustment tool (J-6380-710-A)
RP extension tool (J-6381-370-A)
Alignment tape (KRV-4821PSA)
Box screwdriver (width 5.5 mm)
Connecting cable

Connecting the tool :


Oscilloscope
TP1/CP-183 board (F-1)
CTL IN
X Value Adjustment Tool
TRIG
GND
CH-2
VTR
RP Extension Tool
GND
VIDEO PB RF
CH-1
CN804/RP board

Change mode of oscilloscope from "TRIG MODE" to "NORM".

Adjustment Procedure :

(1) Playback the alignment tape.
(2) Turn the tracking control potentiometer on the front panel to the 「FIXED」 position.
(3) Turn the AC adjustment screw until the positions of the CTL waveform and RF waveform meet the specification 1. (Fig. 1 and Fig. 2)
(4) Change the connection to the oscilloscope as follows.
TRIG : SW'ING PULSE terminal/RP extension tool
(5) Turn the AC adjustment screw until the center of the RF waveform is the maximum level. Confirm that the RF waveform meet the specification 2. (Fig. 3)
(6) Turn the tracking control potentiometer on the front panel left and right, and confirm that the center of the RF waveform is the maximum level when the potentiometer is at the 「FIXED」 position. (specification 3)

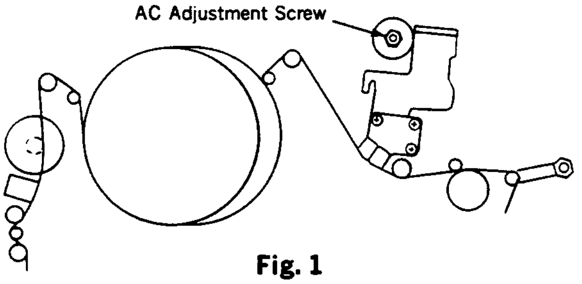

AC Adjustment Screw

Fig. 1

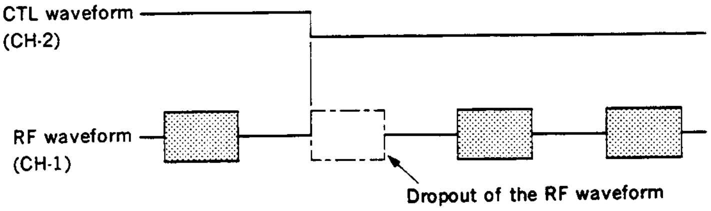
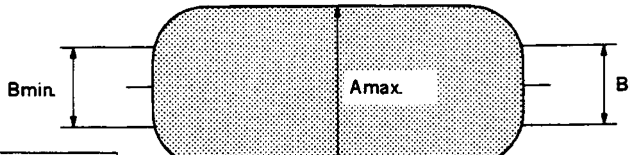

CTL waveform (CH-2)
RF waveform (CH-1)
Dropout of the RF waveform

Fig. 2

Spec. 1 :
The point where the RF waveform has dropout must coincide with the falling edge of the CTL waveform.
If the RF waveform dropout point has shifted to the right at the CTL datum....Turn the AC adjustment screw counterclockwise.
If the RF waveform dropout point has shifted to the left at the CTL datum....Turn the AC adjustment screw clockwise.


Bmin.
Amax.
Bmin.

Spec. 2 :
$\frac{\text{Bmin.}}{\text{Amax.}} \geqq 0.8$

Fig. 3

Spec. 3 :
The center part of the RF waveform must be the maximum level when the tracking control potentiometer is at the 「FIXED」 position.

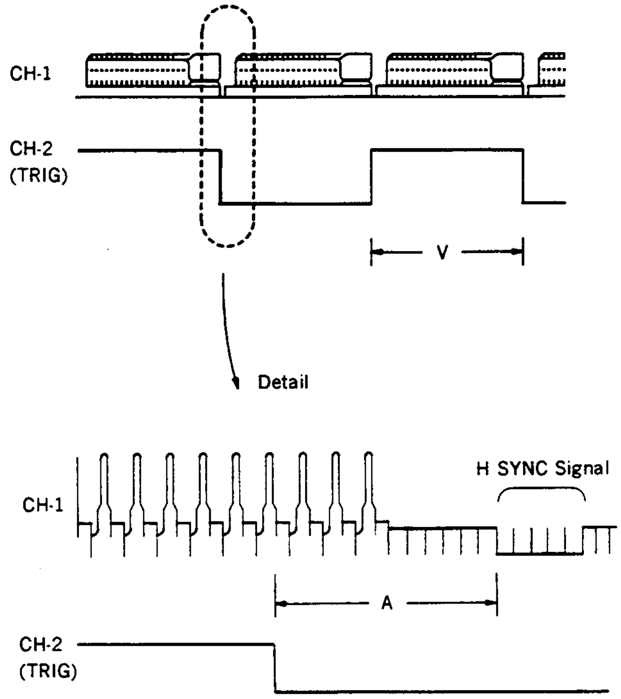
6-13. SWITCHING POSITION ADJUSTMENT

Tools :

Oscilloscope
RP extension tool (J-6381-370A)
Alignment tape (JVC-MH-2)

Adjustment Procedure :

(1) Connect the oscilloscope as follows.
  CH-1 : TP-304/VO board (D-2)
  TRIG : SW'ING PULSE terminal/RP extension tool
  GND : GND terminal/RP extension tool
(2) Playback the color bar part of the alignment tape.
(3) Set the tracking control potentiometer on the front panel to the 「FIXED」 position.
(4) Turn RV102 (D-9) on the SS board until the specification is satisfied.



Spec. :
A=6.5±0.5 H
(416±32 μs)

6-14. TAPE RUNNING CHECK (FF, REW MODE)

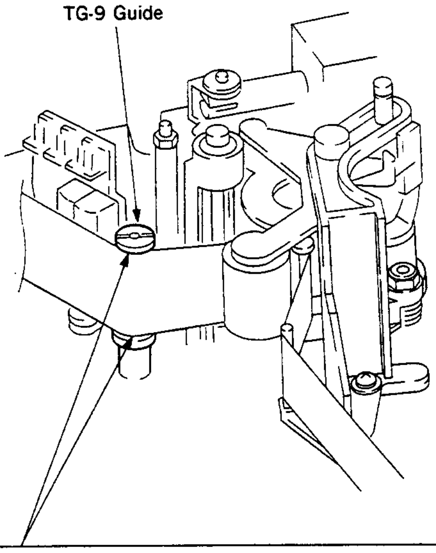
Tool :
S-VHS cassette tape (T-160)

Checking Procedure :

(1) Insert the cassette tape (T-160) into the VTR.
(2) Press the FF button.
(3) Confirm that the tape travels without riding up on the upper or lower flange of the TG-9 guide for about 15 seconds after the VTR goes into the FF mode.
(4) Press the REW button.
(5) Confirm that the tape travels without riding up on the upper or lower flange of the TG-9 guide for about 15 seconds after the VTR goes into the REW mode.

If specification is not satisfied :

(6) Re-adjust the RVS guide height according to sub-section 6-7.
(7) Check steps (2) to (5).



Spec. :
The tape must not ride up on the upper or lower flange.

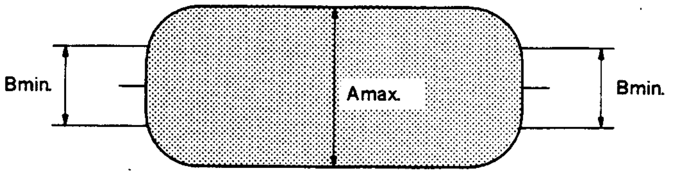
6-15. SELF RECORDING/PLAYBACK CHECK

Tools :

Oscilloscope
S-VHS cassette tape (T-120)
RP extension tool (J-6381-370-A)

Checking Procedure :

(1) Connect the oscilloscope as follows.
    CH-1 : VIDEO PB S-VHS RF terminal/RP extension tool
    TRIG : SW'ING PULSE terminal/RP extension tool
    GND : GND terminal/RP extension tool
(2) Set the tracking control potentiometer on the front panel to the 「FIXED」 position.
(3) Perform recording under no-signal conditions using the center part of the cassette tape (T-120).
(4) Confirm that the playback RF waveform meet the specification. (Fig. 1)
(5) After tape run alignments has been completed, apply locking compound to the AC adjustment screw, and also the audio head azimuth and zenith adjustment screw. (Fig. 2)


Bmin.
Amax.
Bmin.

Spec. : $\frac{B\max.}{A\max.} \geq 0.7$

Fig. 1

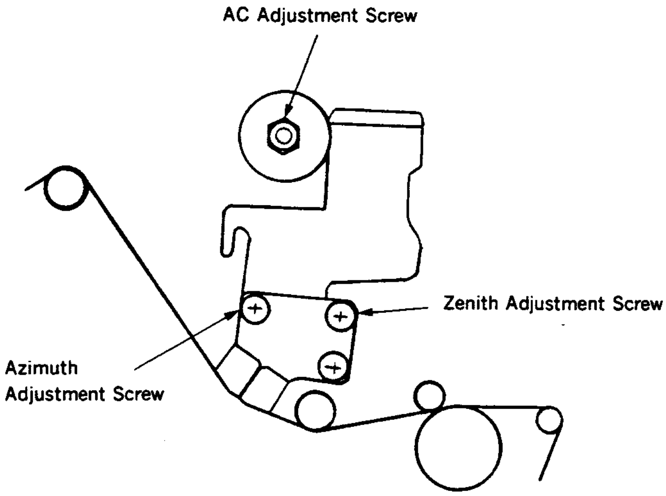

AC Adjustment Screw
Zenith Adjustment Screw
Azimuth Adjustment Screw

Fig. 2

SECTION 7
GENERAL INFORMATION FOR ELECTRICAL ALIGNMENTS

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7-2. EQUIPMENT USED FOR ELECTRICAL ALIGNMENTS

It is recommended to use either the equipment described below or equivalents as measure equipment and signal generator.

[Measure Equipment]

- Oscilloscope (TEKTRONIX 2445B/150 MHz or more)
- Waveform Monitor/Vector Scope (TEKTRONIX 1751)
- Audio Level Meter (HEWLETT PACKARD HP3400)
- Frequency Counter (ADVANTEST TR5821AK)
- Digital Voltmeter

[Signal Generator]

- Multiformat Signal Generator (TEKTRONIX TSG-131 with S-VIDEO OUT)
- Audio Signal Generator (HEWLETT PACKARD HP8904)

[Tool]

- RP Extension Tool (Sony Part No. J-6381-370-A)
- S Video Cable
- S-BNC Video Cable (Sony Part No. J-6381-380-A)
- Y/C Delay Adjustment Tool (Sony Part No. J-6381-910-A)
- Alignment Tape
  KRV-39PF (Sony Part No. 8-192-603-96)
  KRV-45PS (N-VHS) (Sony Part No.: pending)
  KRV-45HPS (S-VHS) (Sony Part No.: pending)
- Blank Tape
  N-VHS Tape (GR-120KG: Sony Part No. 8-896-024-94)
  S-VHS Tape

<Note> See SECTION 6. TAPE RUN ALIGNMENTS (page 6-3) for how to use the RP extension tool.

7-3. ELECTRICAL ADJUSTMENT ASSOCIATED WITH INSPECTION AND MAINTENANCE

7-3-1. Adjustment for Drum Ass'y or Upper Drum Ass'y Replacement

9-4. AFM PB RF Level Adjustment
9-5. AFM REC RF Level Adjustment
10-27. S-VHS Y REC Current Adjustment
10-28. N-VHS Y REC Current Adjustment
10-29. S-VHS Chroma REC Current Adjustment
10-30. Overall Y/C Delay Adjustment
10-31. Overall Y RF Level Adjustment

7-3-2. Adjustment for Audio Head Ass'y Replacement

9-9. LAU PB Level Adjustment
9-10. LAU PB Frequency Response Adjustment
9-11. LAU REC Level Adjustment
9-12. LAU Overall Frequency Response Adjustment

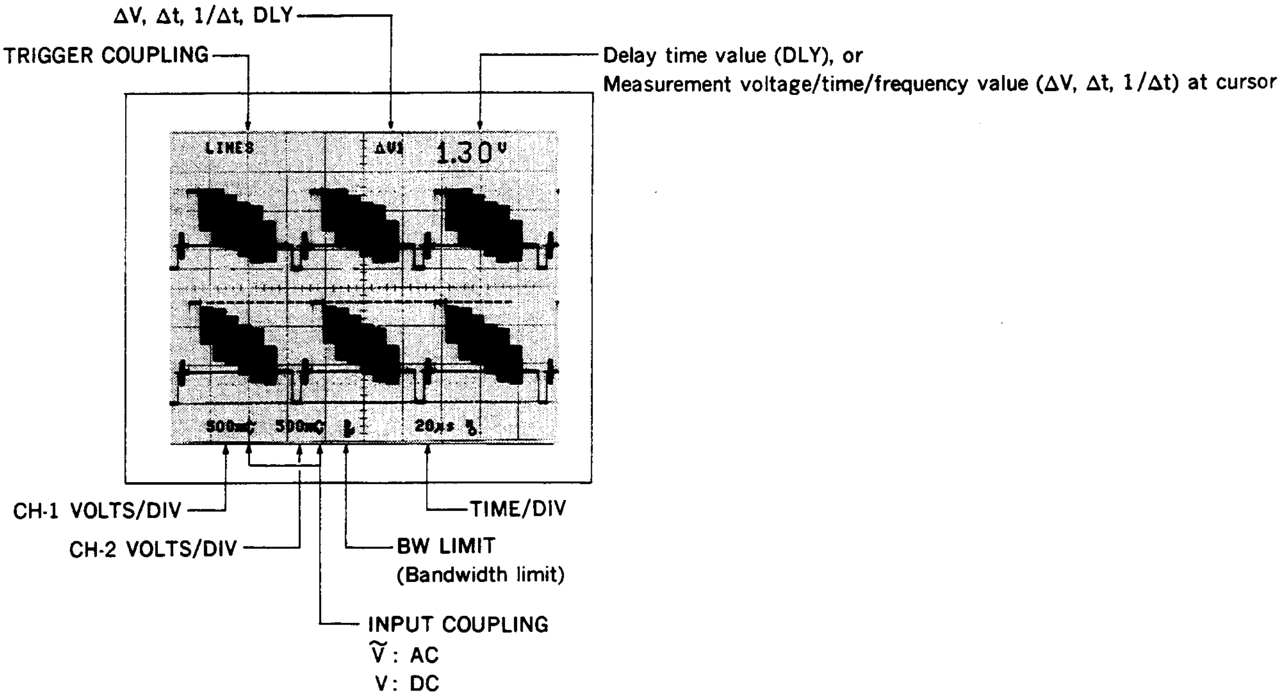
7-3-3. Adjustment for Capstan Motor (SCV-0401A) Replacement

8-3. Capstan FG Duty Adjustment
8-4. Stop Servo Adjustment

7-4. SETTING OF EQUIPMENT FOR ELECTRICAL ALIGNMENTS

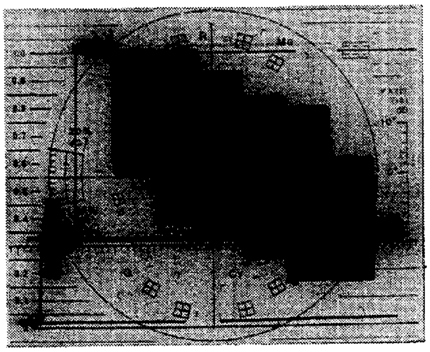
Oscilloscope

- With waveform photograph used for waveform display:
  The setting conditions are displayed on the photograph as given below.

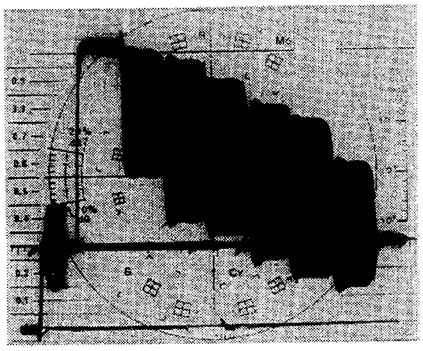

ΔV, Δt, 1/Δt, DLY
TRIGGER COUPLING
Delay time value (DLY), or
Measurement voltage/time/frequency value (ΔV, Δt, 1/Δt) at cursor
LINES
ΔV1
1.30V
500mV
500mV
20μs
CH-1 VOLTS/DIV
CH-2 VOLTS/DIV
TIME/DIV
BW LIMIT
(Bandwidth limit)
INPUT COUPLING
Ṽ: AC
V: DC

7-5. TEST SIGNAL FOR VIDEO SYSTEM

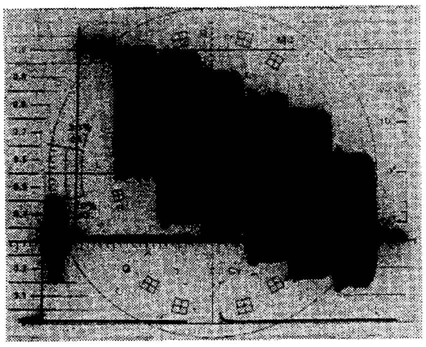
1. 75% COLOR BARS



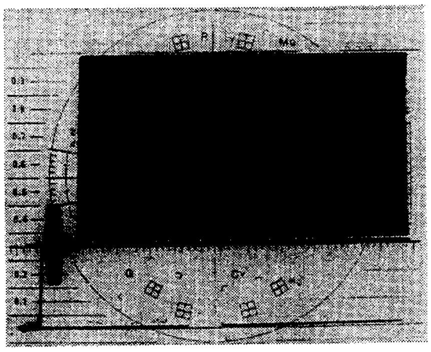
2. KRV-45HPS



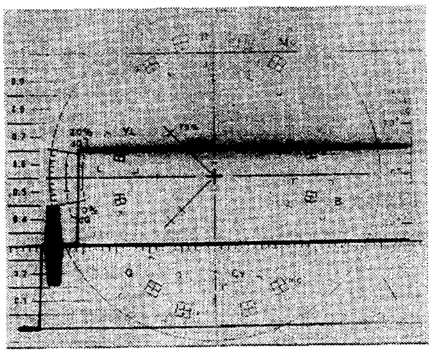
3. KRV-45PS



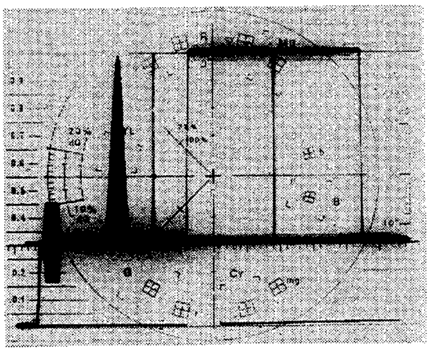
4. CHROMA NOISE



5. 50% FLAT FIELD



6. PULSE & BAR



SECTION 8
SYSTEM CONTROL AND SERVO SYSTEM ALIGNMENTS

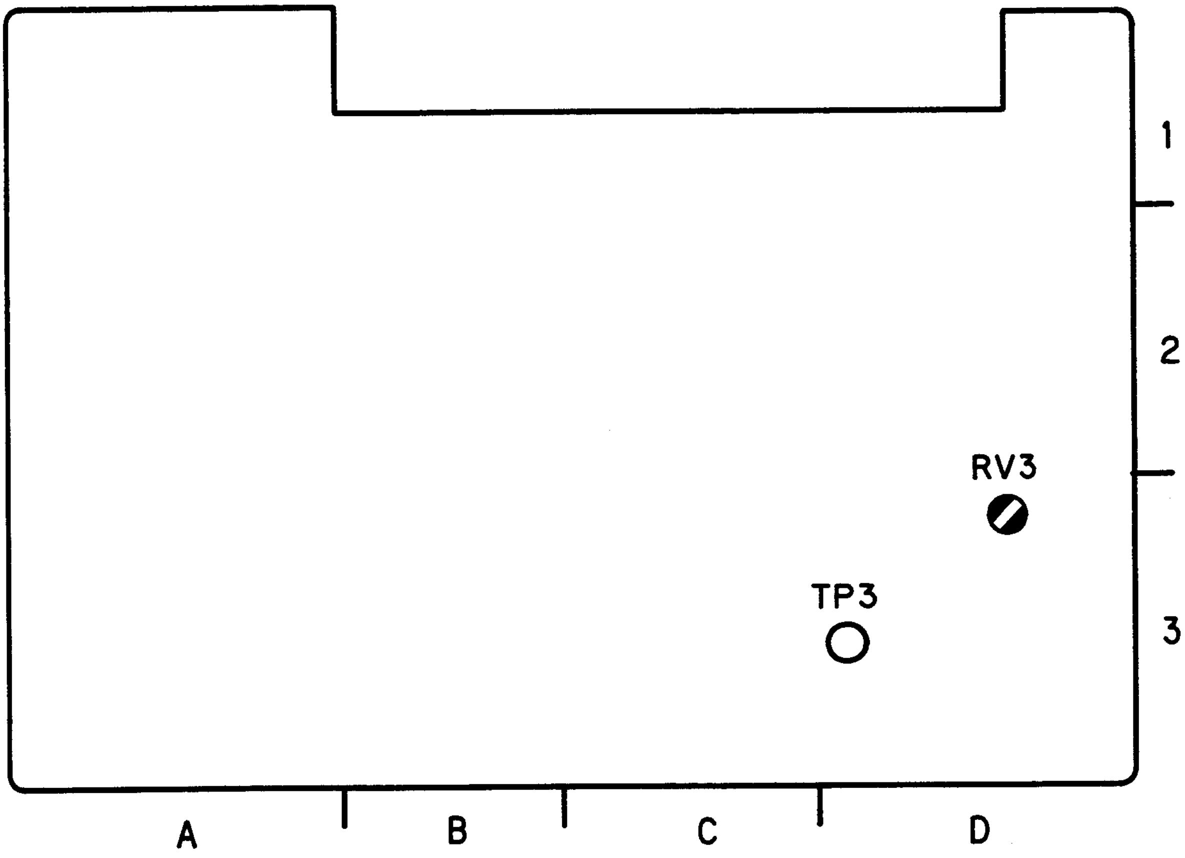
[Equipment Required]

- Digital voltmeter
- Oscilloscope
- S-VHS blank tape

8-1. +5.3V REGULATOR ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• POWER: ON • Connect the digital voltmeter to test point (TP).	TP2/DC-53A (D-3) $5.3^{+0.1}_{-0}$ V dc	⊘RV3/DC-53A (D-2)

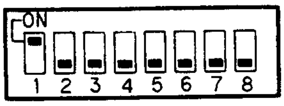
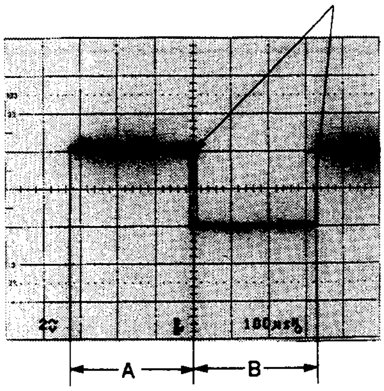
Locations of RV3 and TP3 on DC-53A board. (A side)



8-2. BACK-UP VOLTAGE ADJUSTMENT

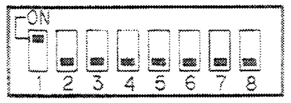
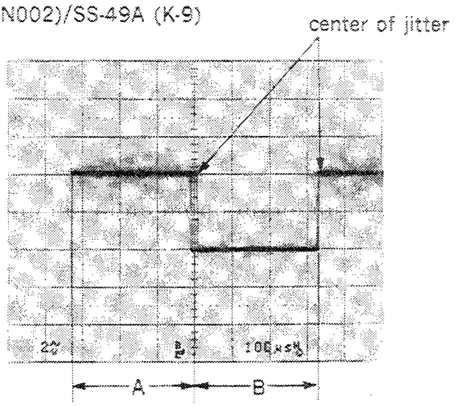
Machine condition for adjustment	Specifications	Adjustments
• Connect TP101/SS-49A (K-2) to E3/SS-49A (H-4) with a 100 ohms resistor. • POWER: ON • Connect the digital voltmeter to test point (TP). • After adjustment, remove the resistor.	TP101/SS-49A (K-2) $5.4^{+0}_{-0.1}$ V dc	⊘ RV101/SS-49A (L-1)

8-3. CAPSTAN FG DUTY ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S101/SS-49A (H-9) No.1 : ON  S101 • Insert a S-VHS blank tape. • REC mode • Connect the oscilloscope to test point (TP). • After adjustment, set the S101 (No.1) to OFF.	TP103 (CN002)/SS-49A (K-9)  center of jitter A=B (DUTY RATE 50%)	⊘RV503/SS-49A (J-9)

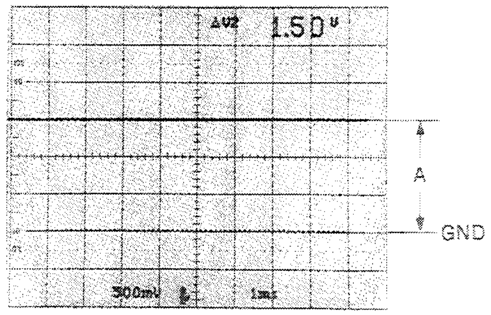
8-4. STOP SERVO ADJUSTMENT

Step 1.

Machine condition for adjustment	Specifications	Adjustments
• S101/SS-49A (H-9) No.1 : ON  S101 • Insert a S-VHS blank tape. • REC mode • Connect the oscilloscope to test point (TP). • After adjustment, set the S101 (No.1) to OFF.	TP505 (CN002)/SS-49A (K-9)  A=B (DUTY RATE 50%)	⊘RV500/SS-49A (J-9)

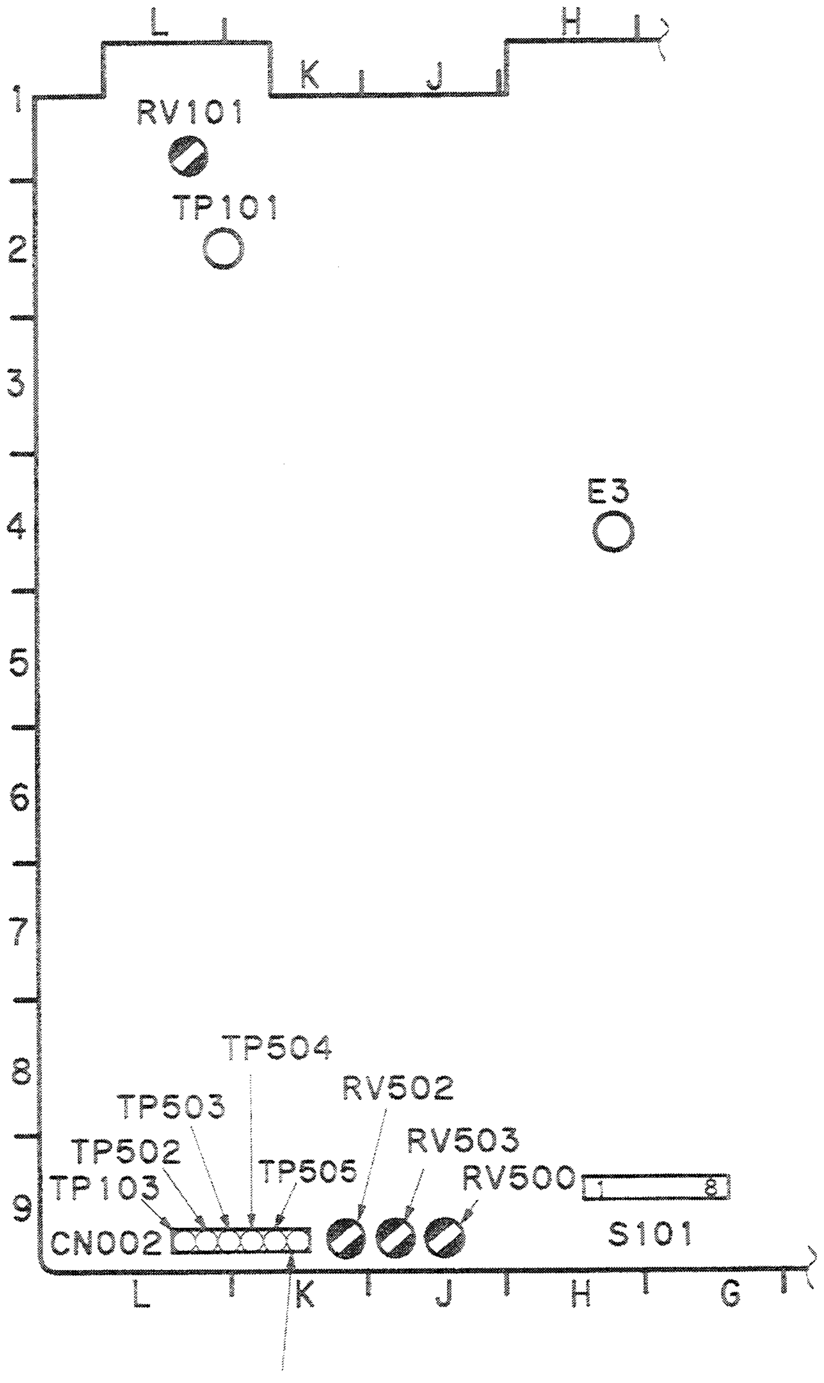
ON
1
2
3
4
5
6
7
8
center of jitter
2V
100μs
A
B

Step 2.

Machine condition for adjustment	Specifications	Adjustments
• REC PAUSE mode • Connect between TP502 (CN002)/SS-49A (K-9) and TP503 (CN002)/SS-49A (K-9) with a shorting clip. • Connect the oscilloscope to test point (TP).	TP504 (CN002)/SS-49A (K-9)  A=1.5±0.1 V dc • Remove the shorting clip, and check that TP103 (CN002)/SS-49A (K-9) disappear a waveform on the oscilloscope.	⊘RV502/SS-49A (K-9)

AV2 1.50V
A
GND
500mV
1ms

Locations of CN, E, RVs, S and TPs on SS-49A board. (A side)



L
K
J
H
1
2
3
4
5
6
7
8
9
RV101
TP101
E3
TP504
TP503
RV502
TP502
RV503
TP103
TP505
RV500
CN002
S101
1
8
L
K
J
H
G

E1 ; When S/N 10031 and higher

E5 ; When S/N 10001 thru 10030 (Only Board No. 1-641-575-12)

SECTION 9
AUDIO SYSTEM ALIGNMENTS

[Equipment Required]

- Oscilloscope
- Audio signal generator
- Audio attenuator
- Audio level meter
- Frequency counter
- RP extension tool (Refer to page 6-3.)
- S-VHS blank tape
- Alignment tapes

Alignment Tape Name (Part No.)	REC Mode	Contents		
		Video Area	**Audio Area**	**Control Area**
KRV-39PF (8-192-603-96)	SP	• None	• RF	• None
KRV-45PS (Part No.: pending)	SP	• Color bars 170 min	• Normal audio 7 kHz 15 seconds, 400 Hz 15 seconds (alternately) • Hi-Fi audio 170 min 400 Hz (stereo)	• CTL frequency 25 Hz

[Setting of switch]

FRONT PANEL

- Hi-Fi REC switch ....ON
- TRACKING control VR ....FIXED

[Note]

- 0 dBu=0.775 Vrms

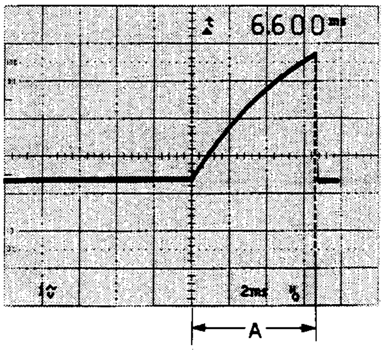
9-1. LINE OUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : 400 Hz, −10 dBu • AUDIO OUT SELECT switch : Hi-Fi • STOP (E-E) mode • Connect the audio level meter to AUDIO OUT.	CH-1 : AUDIO OUT CH-1/L (terminated with 47 kΩ) CH-2 : AUDIO OUT CH-2/L (terminated with 47 kΩ) −10.0±0.3 dBu	⊘ CH-1 : RV10/AU-161A (C-3) ⊘ CH-2 : RV11/AU-161A (D-3)

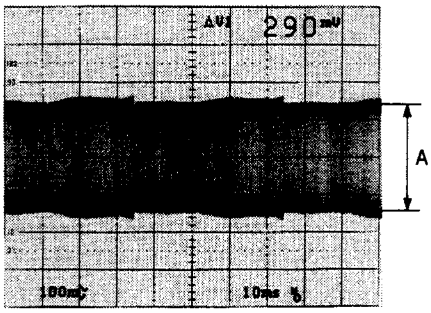
9-2. AFM CARRIER ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : no signal • Insert a S-VHS blank tape. • REC mode • Connect the frequency counter to test point (TP).	TP7/AU-161A (B-1) 1.400±0.005 MHz	ØRV3/AU-161A (B-1)
	TP11/AU-161A (B-3) 1.800±0.005 MHz	ØRV7/AU-161A (B-3)

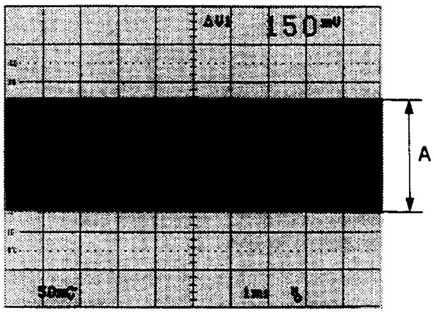
9-3. AFM SWITCHING POSITION ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the alignment tape KRV-45PS. • Connect the oscilloscope to test point (TP).	TP3/AU-161A (A-2)  A=6.6±0.2 ms	ØRV1/AU-161A (A-3)

9-4. AFM PB RF LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the alignment tape KRV-39PF. • Tracking VR: center click (FIXED) • Connect the oscilloscope to test points (TPs).	TP5/AU-161A (B-2)  A=290±20 mV p-p	ØRV2/AU-161A (A-3) Trigger: TP3/AU-161A (A-2)

9-5. AFM REC RF LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : no signal • Insert a S-VHS blank tape. • REC mode • Connect the oscilloscope to CN804 (pin 1) on RP-62A board.	CN804-1/RP-62A (C-1) (RP extension tool: AFM REC CURR. terminal)  A=150±10 mV p-p (When using the RP extension tool, connect the oscilloscope to AFM REC CURR. terminal.)	⊘RV6/AU-161A (B-3)

9-6. AFM PB LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• AUDIO OUT SELECT switch : Hi-Fi • Connect the audio level meter to AUDIO OUT. • Play back the alignment tape KRV-45PS.	CH-1: AUDIO OUT CH-1/L (terminated with 47 kΩ) CH-2: AUDIO OUT CH-2/R (terminated with 47 kΩ) −1.0±0.5 dBu	⊘CH-1: RV4/AU-161A (B-1) ⊘CH-2: RV8/AU-161A (B-4)

9-7. AFM DEVIATION ADJUSTMENT

Step 1.

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : 400 Hz, −10 dBu • AUDIO OUT SELECT switch : Hi-Fi • Connect the audio level meter to AUDIO OUT. • Perform the self-recording/play back(measurement) with a S-VHS blank tape.	CH-1 : AUDIO OUT CH-1/L (terminated with 47 kΩ) CH-2 : AUDIO OUT CH-2/R (terminated with 47 kΩ) −10.0±0.5 dBu <Note> • When the specification is not satisfied, perform the adjustment described in Step 2. • Calculate the difference between the specification (−10.0 dBu) and the measured value in measurement for CH-1 and CH-2. Correction value=Specification value−Measured value	

Step 2.

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : 400 Hz, −10 dBu • AUDIO OUT SELECT switch : Hi-Fi • STOP (E-E) mode • Connect the audio level meter to test point (TP).	CH-1 : TP8/AU-161A (B-1) CH-2 : TP12/AU-161A (B-2) • Check the measured value at test point. Specification value=Measured value−1/2×correction value • Make the output value coincide with specification value (Step 2). • Perform the adjustment described in Step 1 again. Example) Step 1 Specification −10.0 dBu Measured value −11.0 dBu Correction value =−10.0 dBu− (−11.0 dBu) =1.0 dBu Step 2 Measured value −19 dBu Specification value =−19 dBu−1/2×1.0 dBu =−19.5 dBu	⊘CH-1 : RV5/AU-161A (C-1) ⊘CH-2 : RV9/AU-161A (B-2)

9-8. LAU EE LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : 1 kHz, −10 dBu • Connect the audio level meter to AUDIO OUT. • AUDIO OUT SELECT switch : NORMAL • Insert a S-VHS blank tape. • STOP (E-E) mode	CH-1 : AUDIO OUT CH-1/L (terminated with 47 kΩ) CH-2 : AUDIO OUT CH-2/R (terminated with 47 kΩ) −10.0±0.5 dBu	⊘CH-1 : RV203/AU-161A (I-3) ⊘CH-2 : RV303/AU-161A (G-3)

9-9. LAU PB LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• AUDIO OUT SELECT switch : NORMAL • Connect the audio level meter to AUDIO OUT. • Play back the Normal audio 400 Hz portion of the alignment tape KRV-45PS.	CH-1 : AUDIO OUT CH-1/L (terminated with 47 kΩ) CH-2 : AUDIO OUT CH-2/R (terminated with 47 kΩ) −10.0±0.5 dBu	⊘CH-1 : RV202/AU-161A (I-3) ⊘CH-2 : RV302/AU-161A (H-3)

9-10. LAU PB FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>Machine condition for adjustment</th><th>Specifications</th><th>Adjustments</th></tr>
<tr><td>• AUDIO OUT SELECT switch
: NORMAL
• Connect the audio level meter to AUDIO OUT.
• Play back the Normal audio 400 Hz and 7 kHz portion of the alignment tape KRV-45PS.</td><td>CH-1 : AUDIO OUT CH-1/L (terminated with 47 kΩ)
CH-2 : AUDIO OUT CH-2/R (terminated with 47 kΩ)
<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>400 Hz</td><td>Reference</td></tr>
<tr><td>7 kHz</td><td>Reference±0.5 dBu</td></tr>
</table></td><td>⊘CH-1 : RV201/AU-161A (J-3)
⊘CH-2 : RV301/AU-161A (H-3)</td></tr>
</table>

9-11. LAU REC LEVEL ADJUSTMENT

Step 1.

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : 1 kHz, −10 dBu • AUDIO OUT SELECT switch : NORMAL • Connect the audio level meter to AUDIO OUT. • Perform the self-recording/play back (measurement) with a S-VHS blank tape.	CH-1 : AUDIO OUT CH-1/L (terminated with 47 kΩ) CH-2 : AUDIO OUT CH-2/R (terminated with 47 kΩ) −10.0±0.3 dBu 〈Note〉 • When the specification is not satisfied, perform the adjustment described in Step 2. • Calculate the difference between the specification (−10.0 dBu) and the measured value in measurement for CH-1 and CH-2. Correction value=Specification value−Measured value	

Step 2.

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : 1 kHz, −10 dBu • AUDIO OUT SELECT switch : NORMAL • STOP (E-E) mode • Connect the audio level meter to test point (TP).	CH-1 : TP206/AU-161A (J-2) CH-2 : TP306/AU-161A (H-2) • Check the measured value at test point. Specification value=Measured value−Correction value • Set the above specification value to output level and perform the adjustment described in Step 1 again. Example) Step 1 Specification −10.0 dBu Measured value −11.0 dBu Correction value =−10.0 dBu− (−11.0 dBu) =1.0 dBu Step 2 Measured value −19 dBu Specification value =−19 dBu−1.0 dBu =−20 dBu	⊘CH-1 : RV204/AU-161A (J-2) ⊘CH-2 : RV304/AU-161A (H-2)

9-12. LAU OVERALL FREQUENCY RESPONSE ADJUSTMENT

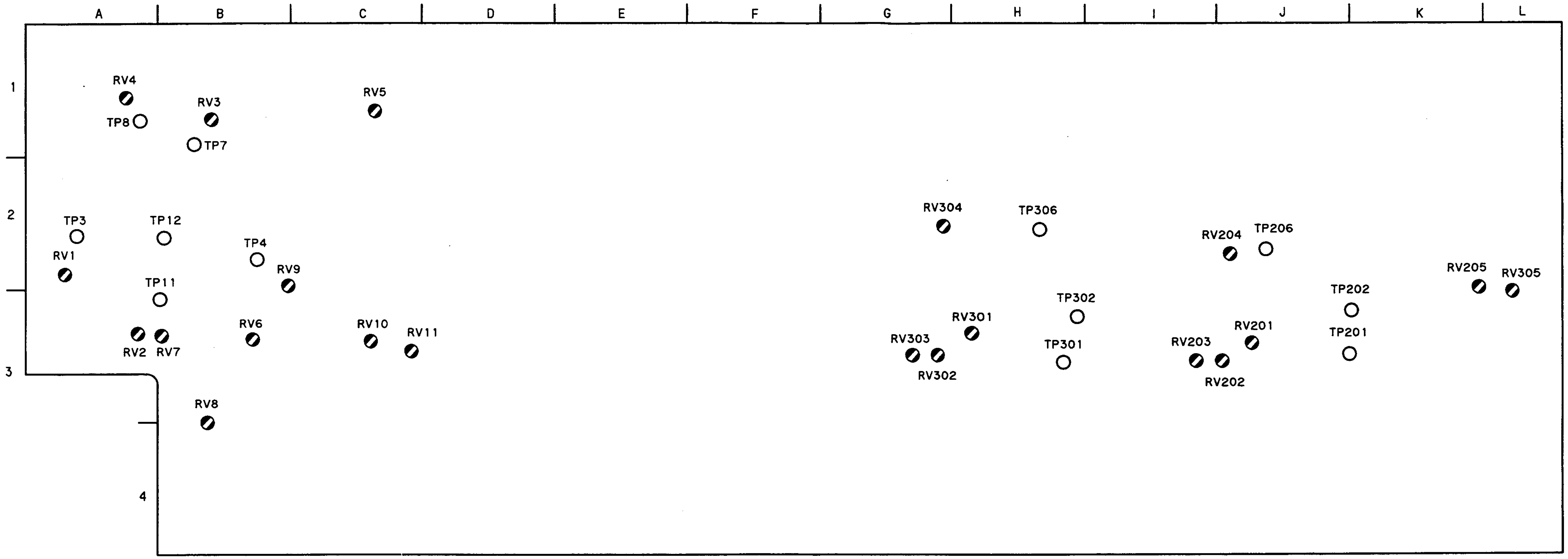
Step 1.

<table>
<tr><th>Machine condition for adjustment</th><th>Specifications</th><th>Adjustments</th></tr>
<tr><td>• CH-1, 2 AUDIO IN
: 1 kHz, 7 kHz, −30 dBu
• AUDIO OUT SELECT switch
: NORMAL
• Connect the audio level meter to AUDIO OUT.
• Perform the self-recording/play back (measurement) with a S-VHS blank tape.</td><td>CH-1 : AUDIO OUT CH-1/L (terminated with 47 kΩ)
CH-2 : AUDIO OUT CH-2/R (terminated with 47 kΩ)<table><tr><th>Frequency</th><th>Level</th></tr><tr><td>1 kHz</td><td>Reference</td></tr><tr><td>7 kHz</td><td>Reference±2 dBu</td></tr></table>⟨Note⟩ If the specification is not satisfied, check the measurement value, perform the adjustment of the Step 2.</td><td></td></tr>
</table>

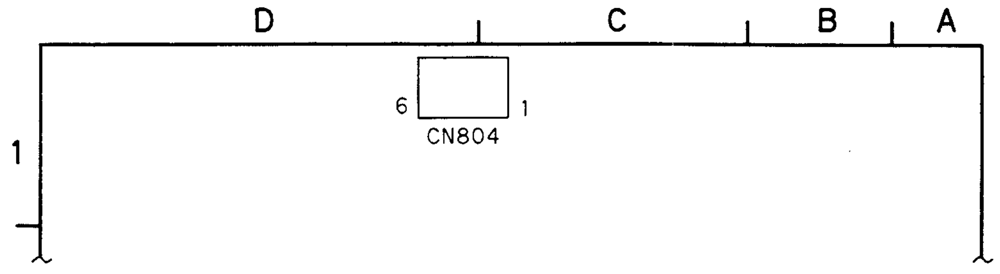
Step 2.

Machine condition for adjustment	Specifications	Adjustments
• CH-1, 2 AUDIO IN : 1 kHz, −10 dBu • Insert a S-VHS blank tape. • REC mode • Connect the audio level meter to test point (TP).	CH-1 : TP201/AU-161A (K-3) GND : TP202/AU-161A (K-3) CH-2 : TP301/AU-161A (H-3) GND : TP302/AU-161A (I-3) • With measured value (7 kHz) is higher than reference value (1 kHz) : Increase the level of TP201 (CH-1) or TP301 (CH-2). • With measured value (7 kHz) is lower than reference value (1 kHz) : Decrease the level of TP201 (CH-1) or TP301 (CH-2). Repeat Step 1 and Step 2 until she specification of Step 1 is satisfied.	⊘ CH-1 : RV205/AU-161A (K-2) ⊘ CH-2 : RV305/AU-161A (I-2)

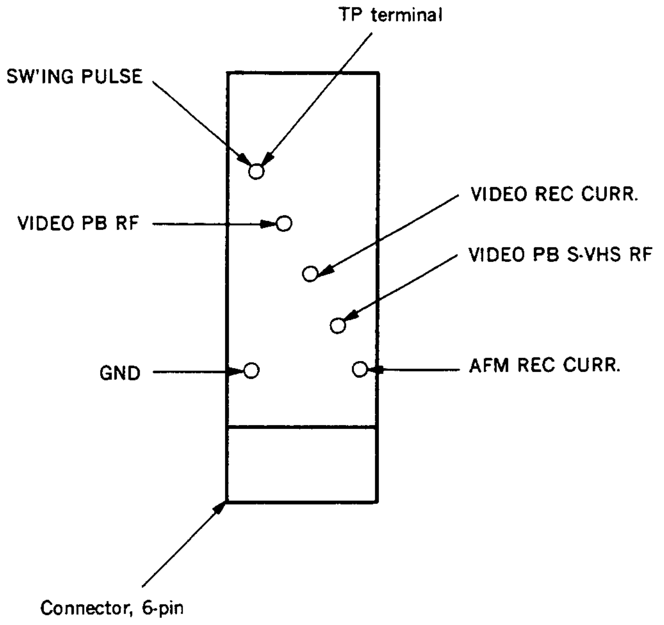
Locations of RVs and TPs on AU-161A board. (B side)


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
RV4
TP8
RV3
TP7
RV5
TP3
RV1
TP12
TP11
TP4
RV9
RV2
RV7
RV6
RV10
RV11
RV8
RV304
TP306
RV301
RV303
RV302
TP302
TP301
RV204
TP206
RV203
RV201
RV202
TP202
TP201
RV205
RV305

Location of CN804 on RP-62A board. (A side)


D
C
B
A
1
6
1
CN804

Locations of TP terminals on RP extension tool.


TP terminal
SW'ING PULSE
VIDEO PB RF
VIDEO REC CURR.
VIDEO PB S-VHS RF
GND
AFM REC CURR.
Connector, 6-pin

SECTION 10
VIDEO SYSTEM ALIGNMENTS

[Equipment Required]

- Oscilloscope
- Frequency counter
- Digital voltmeter
- Multiformat signal generator (with S-VIDEO OUT)
- Waveform/Vector monitor
- Y/C delay adjustment tool
- S-BNC video cable
- Video cable with S connector
- RP extension tool (Refer to page 6-3.)
- Blank tape (Normal-VHS)
- Blank tape (Super-VHS)
- Alignment tapes

Alignment Tape Name (Part No.)	REC Mode	Contents		
		Video Area	Audio Area	Control Area
KRV-45PS (Normal-VHS) (Part No. : pending)	SP	• Color bars 170 min	• Normal audio 7 kHz 15 seconds, 400 Hz 15 seconds (alternately) • HiFi audio 170 min 400 Hz (stereo)	• CTL frequency 25 Hz
KRV-45HPS (Super-VHS) (Part No. : pending)				

[Setting of switch]

REAR PANEL

- 75 Ω termination switches for VIDEO IN (S type and BNC type)……75 Ω ON

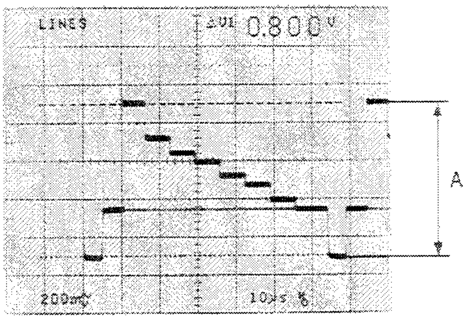
FRONT PANEL

- CTL/MENU switch……………………………………………………CTL
- PROGRAM switch ……………………………………………………OFF
- TRACKING control VR ……………………………………………FIXED

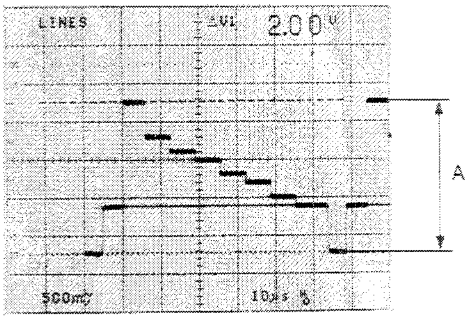
[Note]

- Depending on the menu setting provided at the factory, this set is set to the following modes of operation (S-VHS selection).
  When recording with S-VHS tape, S-VHS (Super-VHS) mode is selected for recording.
  When recording with N-VHS tape, N-VHS (Normal-VHS) mode is selected for recording.
  When playing back, depending on the recording mode recorded on the tape, either S-VHS or N-VHS mode will be automatically selected. (Refer to Sec. 1-8 Menu Operations on page 1-30.)

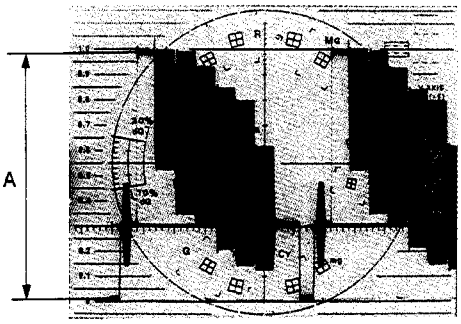
10-1. Y AGC LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs).	TP303/VO-37A (D-4)  A=0.80±0.05 V p-p	⊘RV101/VO-37A (K-4) Trigger : TP301/VO-37A (C-5)

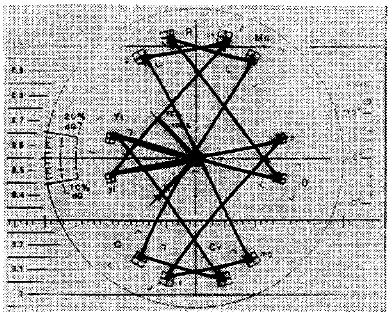
10-2. S VIDEO OUT Y OUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs).	TP492/VO-37A (G-1)  A=2.0±0.1 V p-p	⊘RV482/VO-37A (G-2) Trigger : TP301/VO-37A (C-5)

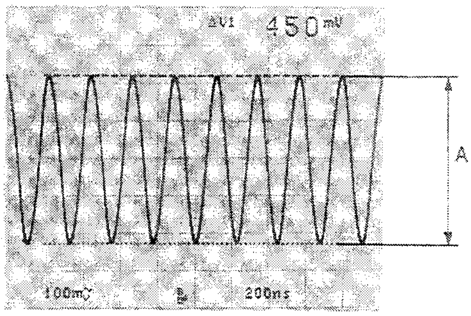
10-3. VIDEO OUT MIX Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode Waveform/Vector monitor • WAVEFORM	VIDEO OUT connector (terminated with 75 Ω)  A=1.00±0.05 V p-p	➊RV480/VO-37A (G-4)

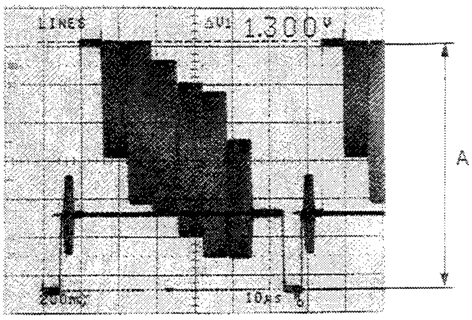
10-4. VIDEO OUT MIX CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode Waveform/Vector monitor • VECT	VIDEO OUT connector (terminated with 75 Ω)  • The luminous spot of burst shall be at 75% position on mark. • One and more luminous spots shall within the frame of each ⊞ mark.	➊RV481/VO-37A (G-3)

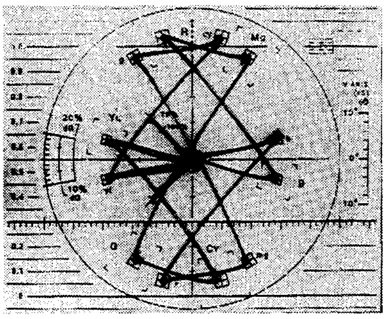
10-5. PB FSC ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45PS. • Connect the frequency counter through the oscilloscope to test point (TP).	TP602/CR-39 (G-2)  4.433619±0.000020 MHz (A≧300 mV p-p)	⊘CV601/CR-39 (D-2) Trigger : INT

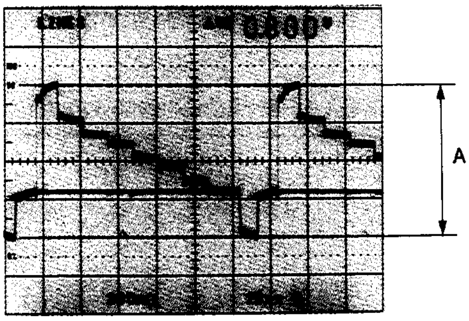
10-6. COMPOSITE IN Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : no connection • VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs).	TP302/VO-37A (A-5)  A=1.30±0.05 V p-p	⊘RV310/VO-37A (B-1) Trigger : TP301/VO-37A (C-5)

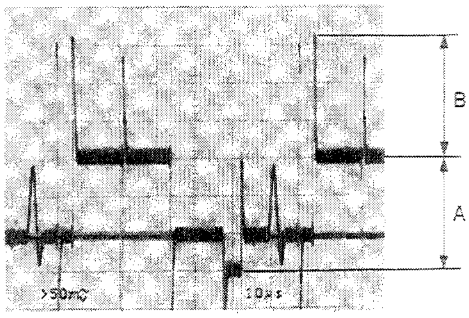
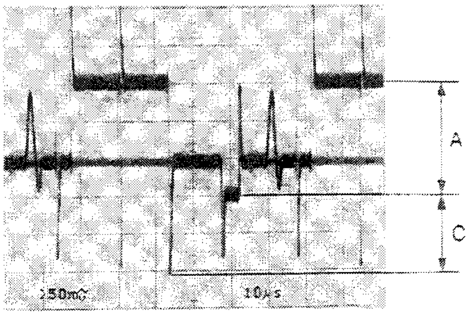
10-7. COMPOSITE IN CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN: no connection • VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode Waveform/Vector monitor • VECTOR	VIDEO OUT connector (terminated with 75 Ω)  • The luminous spot of burst shall be at 75% position on mark. • One and more luminous spots shall within the frame of each ⊞ mark.	⊘RV311/VO-37A (B-1)

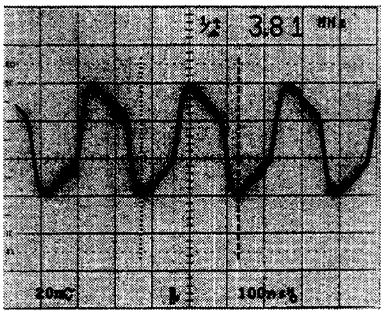
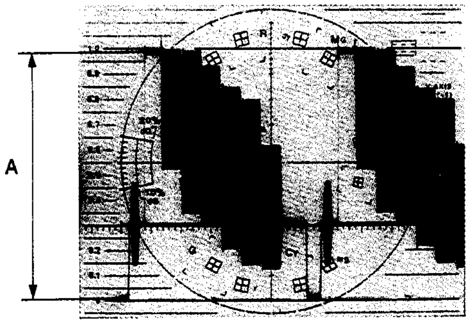
10-8. S-VHS Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs).	TP201/VO-37A (E-5)  A=0.80±0.04 V p-p	⊘RV202/VO-37A (E-5) Trigger : TP301/VO-37A (C-5)

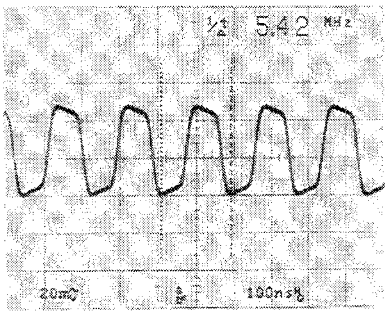
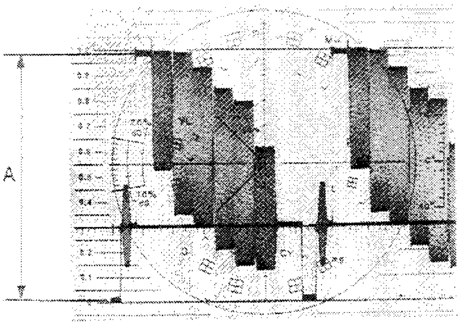
10-9. N-VHS WHITE/DARK CLIP ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : no connection • VIDEO IN : pulse & bar signal • Insert a N-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs).	TP101/VO-37A (K-3)  $\frac{B}{A}=110\pm2\%$ (A=VIDEO signal+SYNC signal. A is reference level.)	⊘RV104/VO-37A (K-2) Trigger : TP301/VO-37A (C-5)
	TP101/VO-37A (K-3)  $\frac{C}{A}=70\pm2\%$ (A=VIDEO signal+SYNC signal. A is reference level.)	⊘RV108/VO-37 (K-2) Trigger : TP301/VO-37A (C-5)

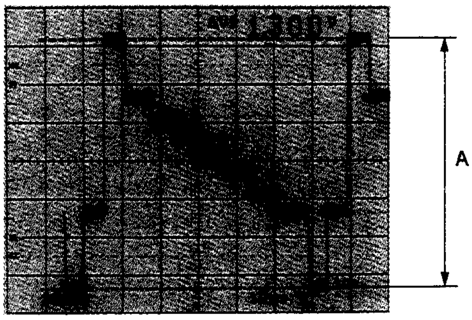
10-10. N-VHS SYNC CHIP CARRIER SET/DEVIATION ADJUSTMENT

Machine condition for adjustment	**Specifications**	**Adjustments**
• S-VIDEO IN: no connection • VIDEO IN : no signal • Insert a N-VHS blank tape. • STOP (E-E) mode • Connect the frequency counter through the oscilloscope to test point (TP).	Sync chip carrier set adjustment TP202/VO-37A (L-1)  3.80±0.05 MHz	⊘RV109/VO-37A (K-2)
• S-VIDEO IN: no connection • VIDEO IN: color bars signal (WHITE 100%, AMPL 75%) • Perform the self-recording/play back (measurement) with a N-VHS blank tape. Waveform/Vector monitor • WAVEFORM	Deviation adjunstment VIDEO OUT connector (terminated with 75 Ω)  A=1.00±0.05 V p-p • With measured value is higher than specification value: Turu only a few RV102 to counterclockwise. • With measured value is lower than specification value: Turu only a few RV102 to clockwise. Repeat the self-recording/play back (measurement) and RV102 adjustment until the specification is satisfied.	⊘RV102/VO-37A (K-3)

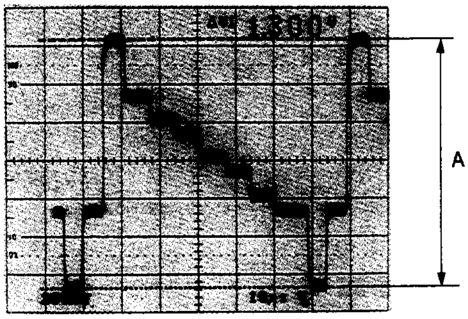
10-11. S-VHS SYNC CHIP CARRIER SET/DEVIATION ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : no signal • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the frequency counter through the oscilloscope to test point (TP).	Sync chip carrier set adjustment TP202/VO-37A (L-1)  5.42±0.05 MHz	⊘RV107/VO-37A (K-1)
• S-VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Perform the self-recording/play back (measurement) with a S-VHS blank tape. Waveform/Vector monitor • WAVEFORM	Deviation adjustment VIDEO OUT connector (terminated with 75 Ω)  A=1.00±0.05 V p-p • With measured value is higher than specification value: Turu only a few RV103 to counterclockwise. • With measured value is lower than specification value: Turu only a few RV103 to clockwise. Repeat the self-recording/play back (measurement) and RV103 adjustment until the specification is satisfied.	⊘RV103/VO-37A (K-3)

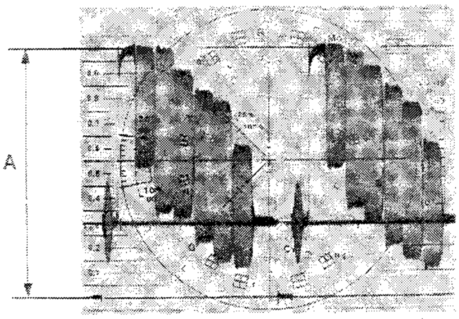
10-12. N-VHS PB DEMOD Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45PS. • Connect the oscilloscope to test points (TPs).	TP302/VO-37A (A-5)  A=1.30±0.05 V p-p	●RV106/VO-37A (J-2) Trigger : TP301/VO-37A (C-5)

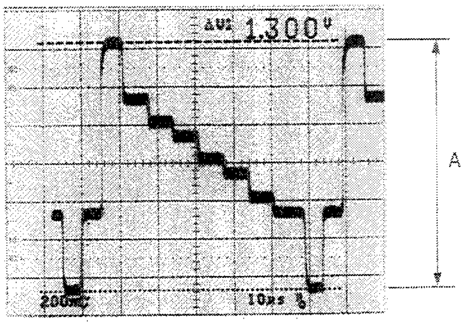
10-13. S-VHS PB DEMOD Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. • Connect the oscilloscope to test points (TPs).	TP302/VO-37A (A-5)  A=1.30±0.50 V p-p	●RV105/VO-37A (H-1) Trigger : TP301/VO-37A (C-5)

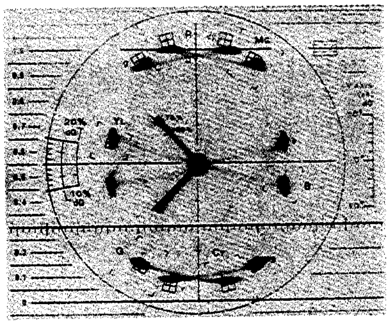
10-14. CNR OUT Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. Waveform/Vector monitor • WAVEFORM	VIDEO OUT connector (terminated with 75 Ω)  A=1.00±0.05 V p-p	⊘RV402/VO-37A (E-3)

10-15. CNR IN Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. • Connect the oscilloscope to test points (TPs).	TP304/VO-37A (D-2)  A=1.30±0.05 V p-p	⊘RV30/VO-37A (D-2) Trigger : TP301/VO-37A (C-5)

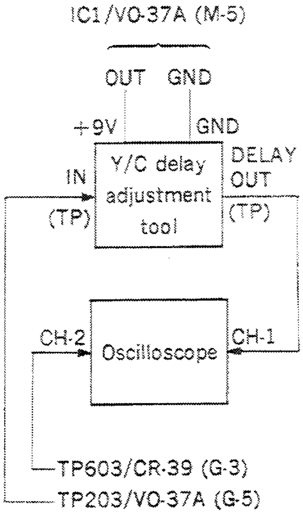
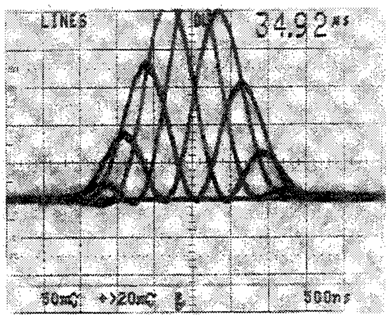
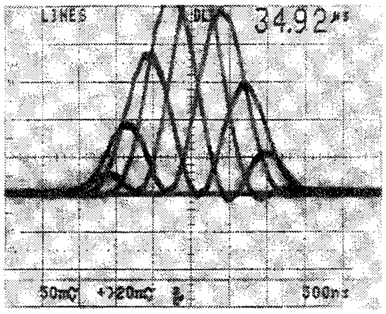
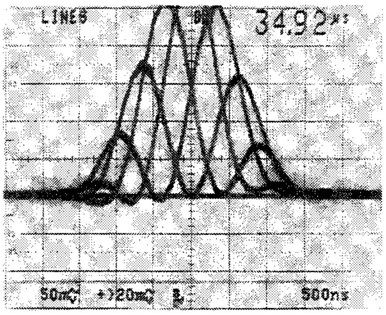
10-16. CNR OUT CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. Waveform/Vector monitor • VECTOR	VIDEO OUT connector (terminated with 75 Ω)  The luminous spot of burst shall be at 75% position on mark.	●RV401/VO-37A (E-4)

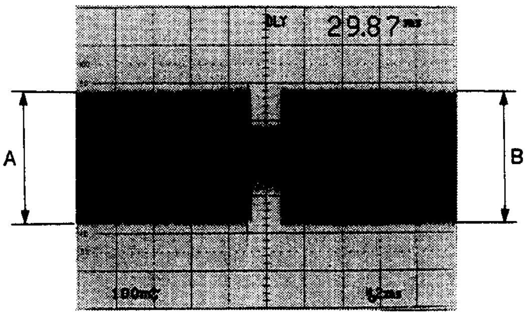
10-17. 320 fH FREE RUN ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45PS. • Connect the digital voltmeter to test point (TP).	TP606/CR-39 (E-2) 3.35±0.01 V dc	●RV602/CR-39 (F-2)

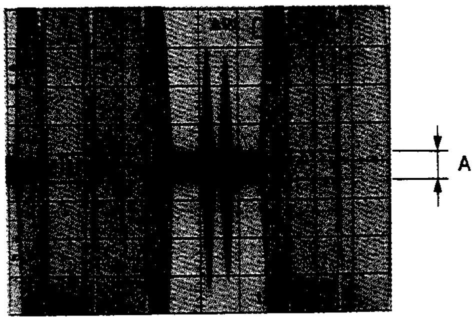
10-18. REC Y/C DELAY ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : pulse & bar signal • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs) as follows.  IC1/VO-37A (M-5) OUT GND +9V GND IN (TP) Y/C delay adjustment tool DELAY OUT (TP) CH-2 Oscilloscope CH-1 TP603/CR-39 (G-3) TP203/VO-37A (G-5) Oscilloscope • ADD • CH-2 : VAR	CH-1 : TP203/VO-37A (G-5) (through the Y/C delay adjustment tool) CH-2 : TP603/CR-39 (G-3) OK  LINES 34.92µs 50mV ↔20mV 500ns NG  LINES 34.92µs 50mV ↔20mV 500ns NG  LINES 34.92µs 50mV ↔20mV 500ns Flatten the bottom side portion (envelope) of modulation pulse part. [If the specification can not be satisfied, short the short land slit SL1/CR-39 (G-3), SL2/CR-39 (F-3), or SL3/CR-39 (F-3), and readjust using CV603/CR-39 (G-3) so that specication is satisfied. (SL No. value becomes large, chroma signal delays behind for the Y signal.)]	❼CV603/CR-39 (G-3)

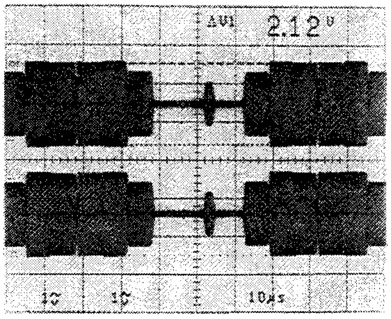
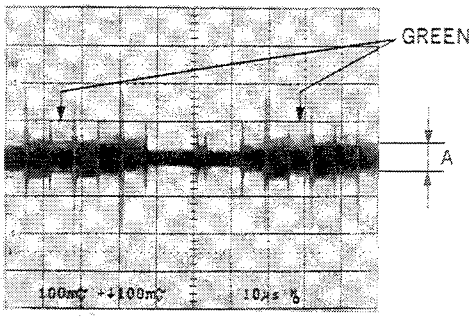
10-19. PB CHROMA RF LEVEL BALANCE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. • Tracking VR : Maximize the A and B level. • Connect the oscilloscope to test point (TP) and connector pin. • After the adjustment, set the tracking VR to center click (FIXED).	TP601/CR-39 (F-3)  $\frac{B}{A}=100\pm5\%$ (A is reference level.)	➐RV606/CR-39 (G-3) Trigger: CN804-5/RP-62A (C-1) (RP extension tool: SW'ING PULSE terminal)

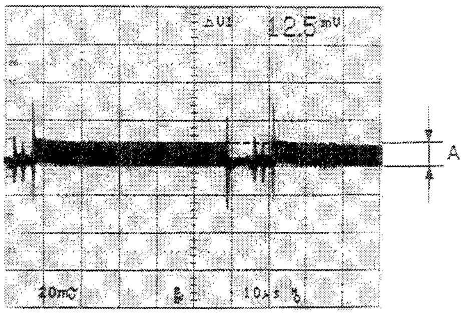
10-20. CONVERTER BALANCE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. • Connect the oscilloscope to test points (TPs).	TP501/CR-39 (B-3)  Minimize the A level. (A≦0.2 V)	➐RV603/CR-39 (E-3) Trigger : TP302/VO-37A (A-5)

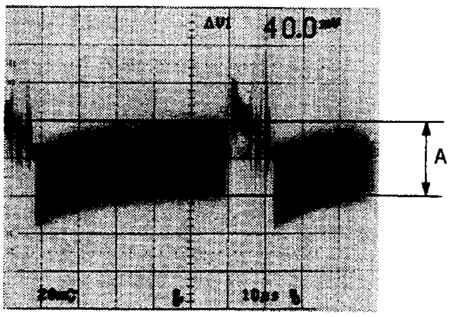
10-21. CROSSTALK CANCELLER ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • STOP (E-E) mode. • Connect the oscilloscope to test points (TPs). Oscilloscope • ADD • CH-2 : INV	CH-1 : TP501/CR-39 (B-3) CH-2 : TP502/CR-39 (B-3)   Minimize the A level. (A is geen level)	⊘RV501/CR-39 (A-3) ⊘RV502/CR-39 (A-3) • Adjust alternately. Trigger : TP301/VO-37A (C-5)

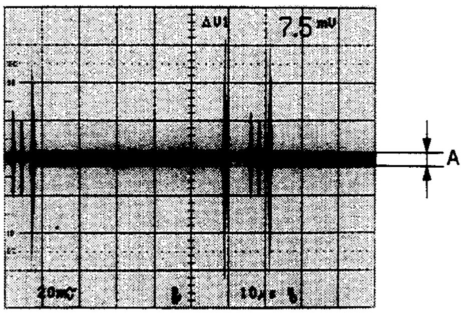
10-22. CPI ADJUSTMENT (1)

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : chroma noise signal • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs).	TP801/CR-39 (B-1)  Minimize the A level. (A≦15 mV)	⊘CV801/CR-39 (C-2) ⊘RV801/CR-39 (B-2) • Adjust alternately. Trigger : TP301/VO-37A (C-5)

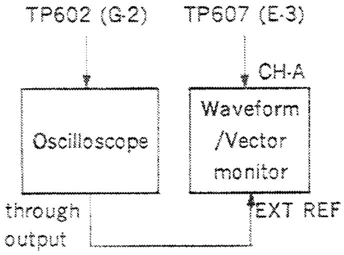
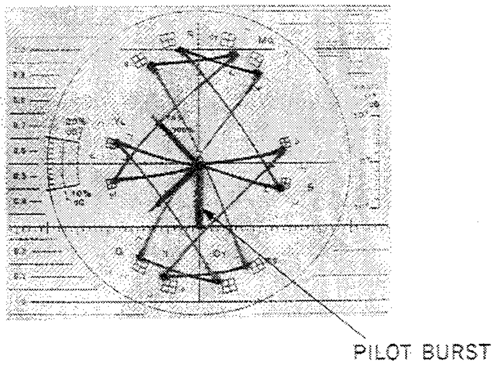
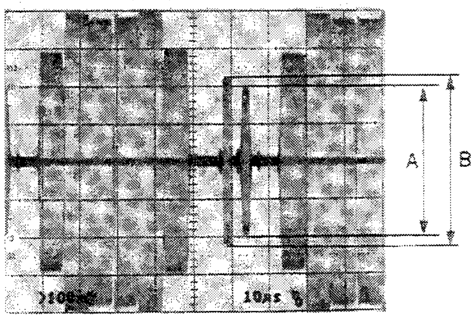
10-23. CPI ADJUSTMENT (2)

Machine condition for adjustment	**Specifications**	**Adjustments**
• S-VIDEO IN : chroma noise signal • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect the oscilloscope to test points (TPs).	TP820/CR-39 (B-1)  Minimize the A level. (A≦60 mV)	❶CV800/CR-39 (B-1) ❷RV800/CR-39 (B-1) • Adjust alternately. Trigger : TP301/VO-37A (C-5)

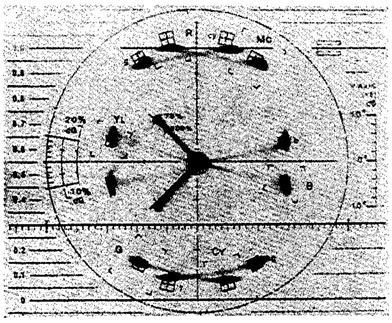
10-24. CPI ADJUSTMENT (3)

Machine condition for adjustment	**Specifications**	**Adjustments**
• S-VIDEO IN : chroma noise signal • Insert a S-VHS blank tape. • STOP (E-E) mode • Connect between TP850/CR-39 (E-1) and TP851/CR-39 (E-1) on the CR-39 board with shorting clip. • Connect the oscilloscope to test points (TPs). • After the adjustment, remove the shorting clip.	TP870/CR-39 (E-1)  Minimize the A level. (A≦10 mV)	❶CV802/CR-39 (C-1) ❷RV802/CR-39 (C-2) • Adjust alternately. Trigger : TP301/VO-37A (C-5)

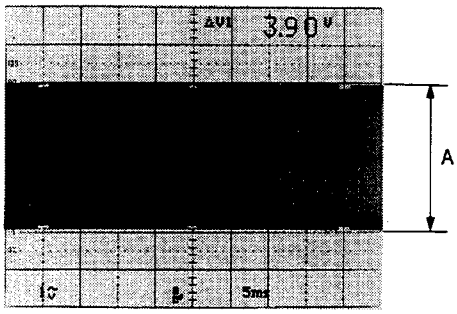
10-25. PILOT BURST ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : color bars signal • Insert a S-VHS blank tape. • Stop (E-E) mode • Connect between TP608/CR-39 (D-3) and E601/CR-39 (G-2) on the CR-39 board with shorting clip. • Connect the Waveform/Vector monitor and oscilloscope to test points (TPs) on the CR-39 board as follows :  TP602 (G-2) TP607 (E-3) CH-A Oscilloscope Waveform /Vector monitor through output EXT REF Waveform/Vector monitor • VECTOR • EXT REF • GAIN×5 • UNCAL	CH-A : TP607/CR-39 (E-3) EXT REF : TP602/CR-39 (G-2) (through the oscilloscope)  PILOT BURST Adjust the CV602 so that the pilot burst dot coincide with regular position.	⊘CV602/CR-39 (D-3)
• Connect the oscilloscope to test points (TPs). • After the adjustment, remove the shorting clip.	TP607/CR-39 (E-3)  $\frac{\text{B (Pilot burst leval)}}{\text{A (Burst level)}} = 110 \pm 5\%$ (A is reference level.)	⊘RV604/CR-39 (F-2) Trigger : TP602/CR-39 (G-2)

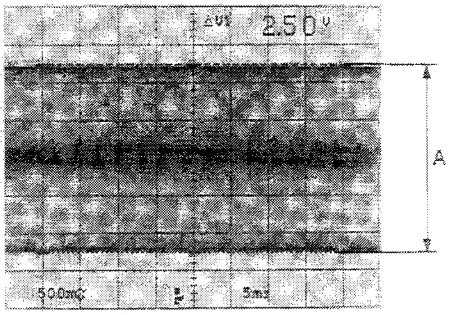
10-26. CNR IN CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. Waveform/Vector monitor • VECTOR	VIDEO OUT connector (terminated with 75 Ω)  The luminous spot of burst shall be at 75% position on mark.	●RV860/CR-39 (E-1)

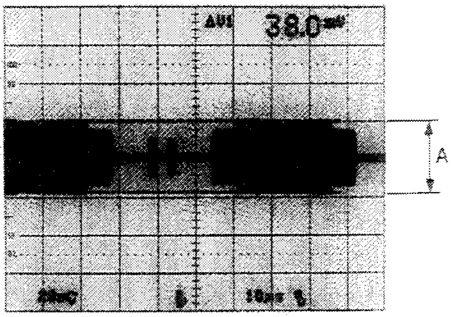
10-27. S-VHS Y REC CURRENT ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : 50% FLAT FIELD signal • Insert a S-VHS blank tape. • REC mode • Connect the oscilloscope to connector pins. (When using RP extension tool, connect the oscilloscope to TP terminals of VIDEO REC CURR. and SW'ING PULSE.)	CN804-3/RP-62A (C-1) (RP extension tool: VIDEO REC CURR terminal)  A=3.9±0.1 V p-p	●RV210/VO-37A (K-1) Trigger: CN804-5/RP-62A (C-1) (RP extension tool: SW'ING PULSE terminal)

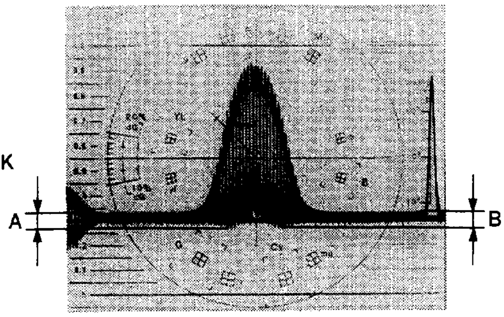
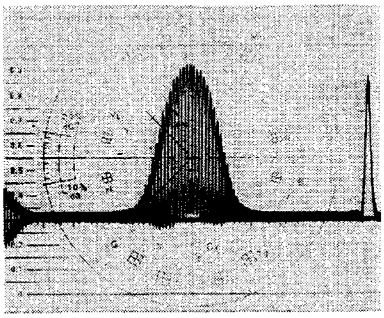
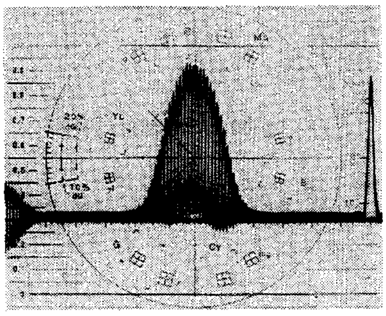
10-28. N-VHS Y REC CURRENT ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN : 50% FLAT FIELD signal • Insert a N-VHS blank tape. • REC mode • Connect the oscilloscope to connector pins. (When using RP extension tool, connect the oscilloscope to TP terminals of VIDEO REC CURR. and SW'ING PULSE.)	CN804-3/RP-62A (C-1) (RP extension tool: VIDEO REC CURR. terminal)  A=2.5±0.1 V p-p	⊘RV211/VO-37A (L-1) Trigger: CN804-5/RP-62A (C-1) (RP extension tool: SW'ING PULSE terminal)

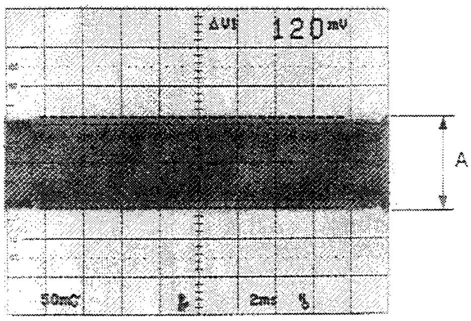
10-29. S-VHS CHROMA REC CURRENT ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN: color bars signal (WHITE 100%, AMPL 75%) • Insert a S-VHS blank tape. • REC mode • Connect the oscilloscope to test points (TPs).	TP210/VO-37A (J-1)  A=38±2 mV p-p	⊘RV260/VO-37A (K-1) Trigger: TP301/VO-37A (C-5)

10-30. OVERALL Y/C DELAY ADJUSTMENT

Machine condition for adjustment	**Specifications**	**Adjustments**
• S-VIDEO IN : pulse & bar signal • Perform the self-recording/playback with a S-VHS blank tape. Waveform/Vector monitor • WAVEFORM	VIDEO OUT connector (terminated with 75 Ω) OK  A=B (Modulation pulse part) NG  NG 	⊘RV601/CR-39(F-3)

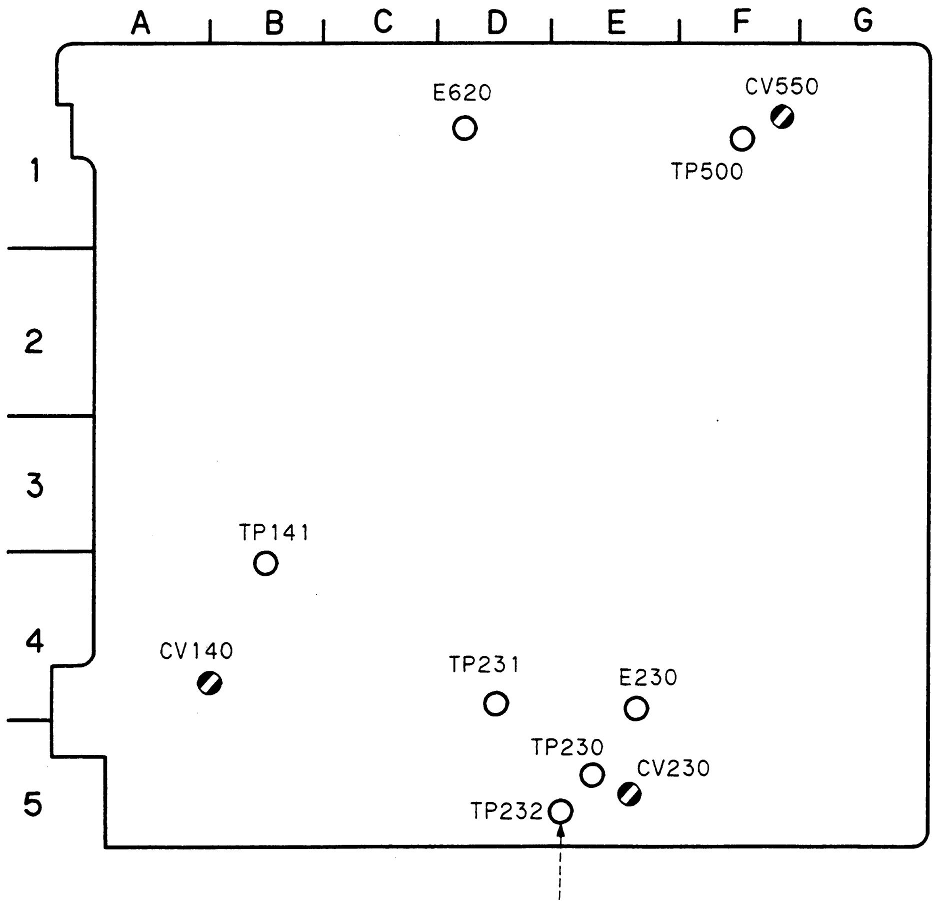
10-31. OVERALL Y RF LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bars signal portion of the alignment tape KRV-45HPS. • Connect the oscilloscope to connector pins. (When using RP extension tool, connect the oscilloscope to TP terminals of VIDEO PB S-VHS RF and SW'ING PULSE.)	CN804-2/RP-62A (C-1) (RP extension tool: VIDEO PB S-VHS RF terminal)  A=120±20 mV p-p	RV201/RP-62A (B-1) Trigger: CN804-5/RP-62A (C-1) (RP extension tool: SW'ING PULSE terminal)

10-32. VM BOARD CLOCK ADJUSTMENT

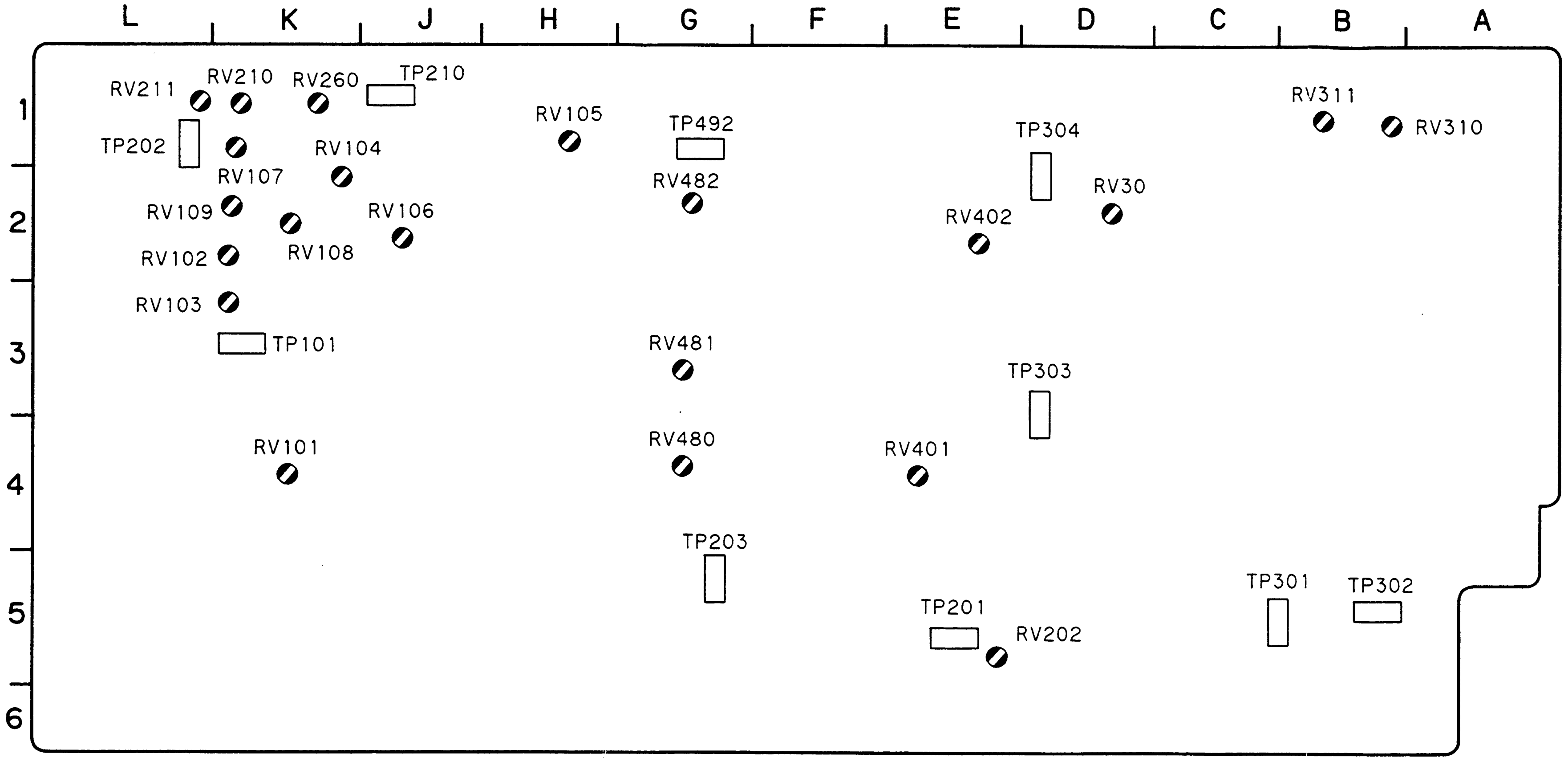
Machine condition for adjustment	Specifications	Adjustments
• S-VIDEO IN : no signal • Insert a S-VHS blank tape. • STOP (E-E) mode. • Connect the frequency counter to test points (TPs) and earth points (Es).	TP141/VM-12P (B-4) E230/VM-12P (E-4) 17.734475±0.000020 MHz	CV140/VM-12P (A-4) (WRITE APC CLOCK)
	TP500/VM-12P (F-1) E620/VM-12P (D-1) 14.21875±0.00002 MHz	CV550/VM-12P (F-1) (READ Y CLOCK)
	TP620/VM-12P (D-1) E620/VM-12P (D-1) 17.734475±0.000020 MHz	CV620/VM-12P (E-1) (READ CHROMA CLOCK)
Only S/N 10001 thru 10280. • Connect the frequency counter to test point (TP) and earth point (E).	TP231/VM-12P (D-4) E230/VM-12P (E-4) 14.21875±0.05000 MHz	CV230/VM-12P (E-5) (WRITE AFC CLOCK)
S/N 10281 and higher. • Connect between TP230/VM-12P (E-4) and TP232/VM-12P (D-5) on the VM-12P board with shorting clip. • Connect the frequency counter to test point (TP) and earth point (E). • After the adjutment, remove the shorting clip.	TP231/VM-12P (D-4) E230/VM-12P (E-4) 14.21875±0.05000 MHz	CV230/VM-12P (E-5) (WRITE AFC CLOCK)

Location of CVs, Es and TPs on VM-12P board. (A side)

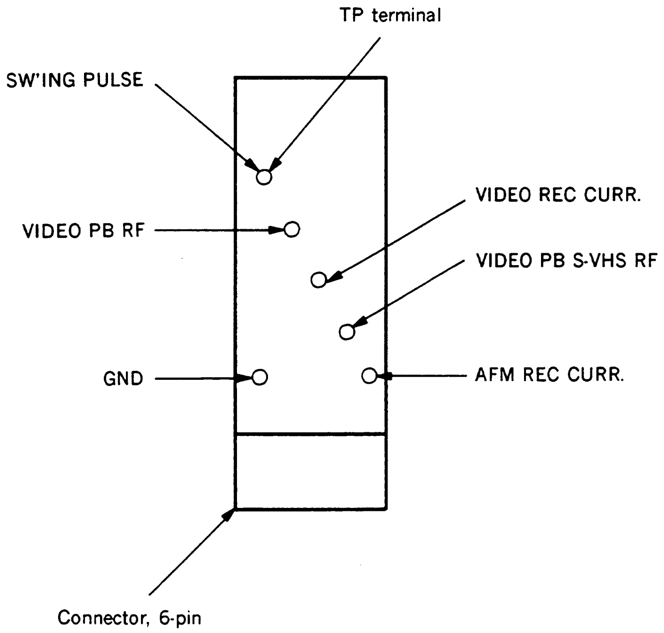

A
B
C
D
E
F
G
1
2
3
4
5
E620
CV550
TP500
TP141
CV140
TP231
E230
TP230
CV230
TP232

This TP232 is attached on the VM-12P board having the S/N 10281 and higher. However, for the board number 1-641-576-11 or 1-641-576-12, it should be noted that there is no marking of TP232.

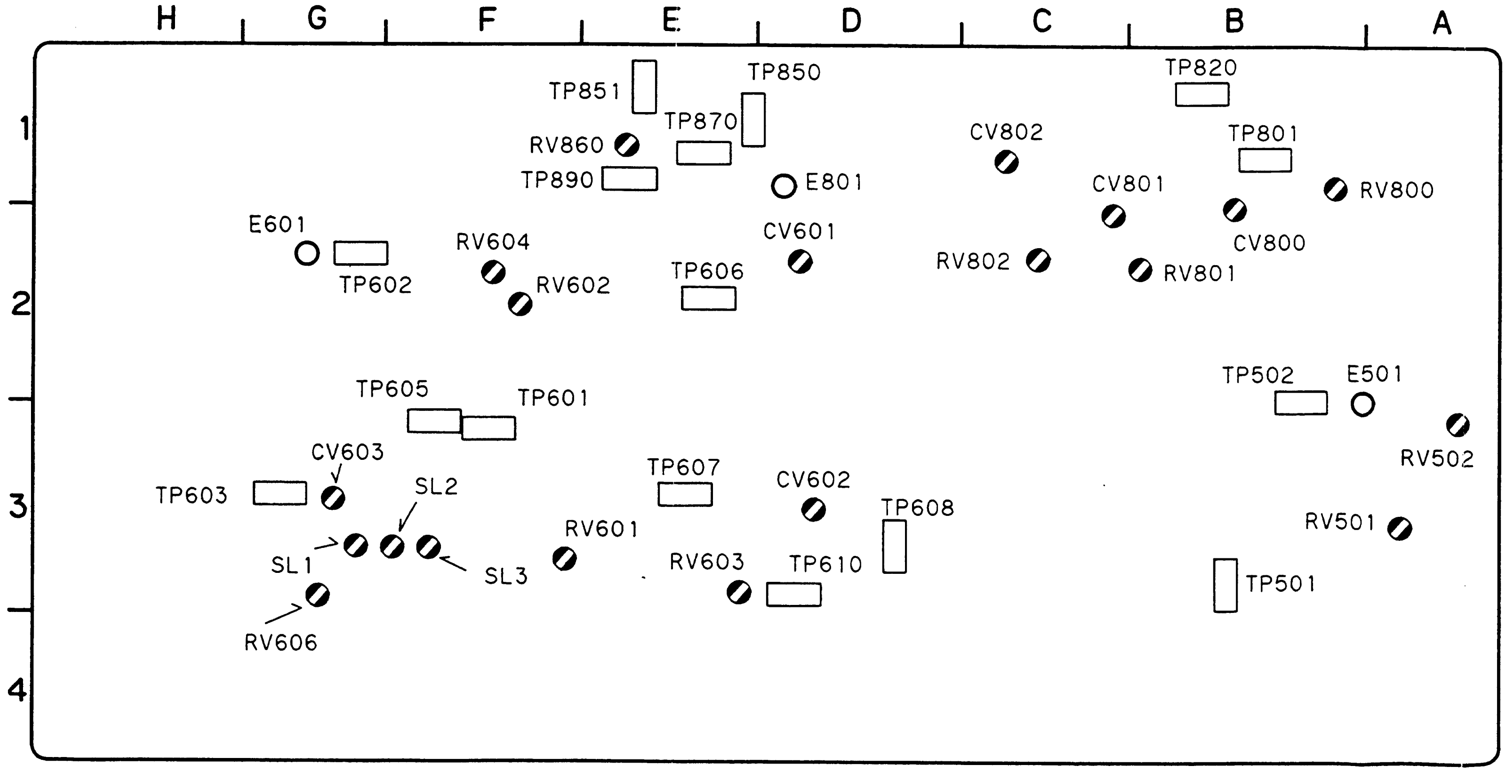
Location of RVs and TPs on VO-37A board. (B side)


L
K
J
H
G
F
E
D
C
B
A
1
2
3
4
5
6
RV211
RV210
RV260
TP210
TP202
RV104
RV107
RV109
RV106
RV108
RV102
RV103
TP101
RV101
RV105
TP492
RV482
RV481
RV480
TP203
TP304
RV30
RV402
TP303
RV401
TP201
RV202
RV311
RV310
TP301
TP302

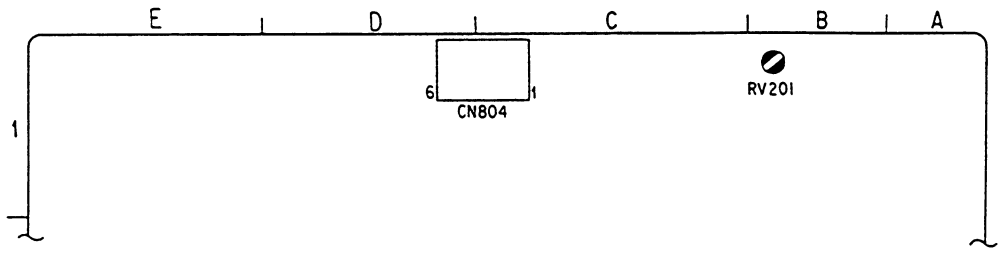
Location of TP terminals on RP extension tool


TP terminal
SW'ING PULSE
VIDEO PB RF
VIDEO REC CURR.
VIDEO PB S-VHS RF
GND
AFM REC CURR.
Connector, 6-pin

Location of CVs, Es, RVs and TPs on CR-39 board. (B side)

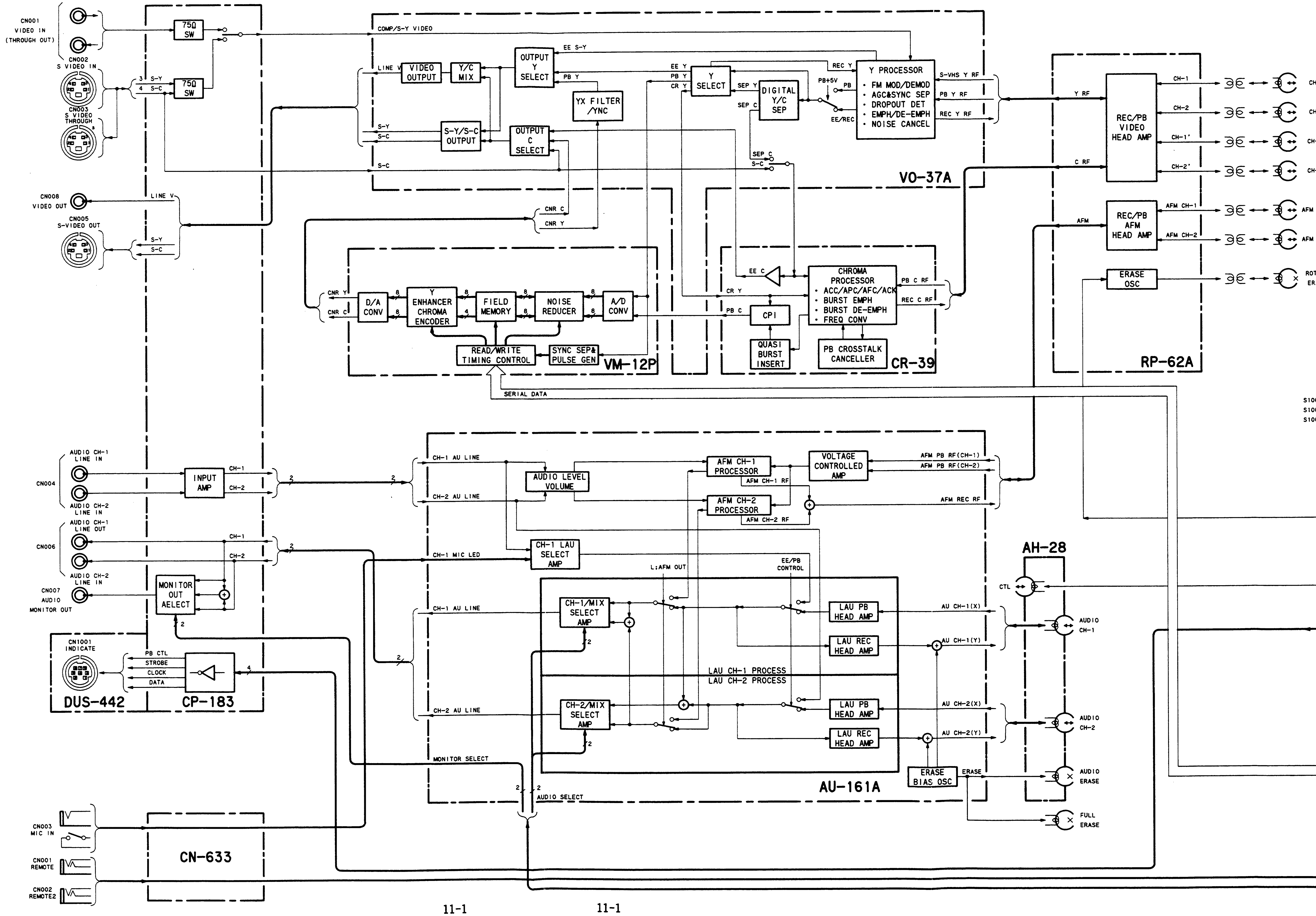

H
G
F
E
D
C
B
A
1
2
3
4
TP851
TP850
TP870
RV860
TP890
E801
TP820
TP801
CV802
CV801
RV800
CV800
E601
TP602
RV604
RV602
TP606
CV601
RV802
RV801
TP605
TP601
TP502
E501
RV502
CV603
TP603
SL2
SL1
SL3
RV606
RV601
TP607
CV602
TP608
RV603
TP610
RV501
TP501

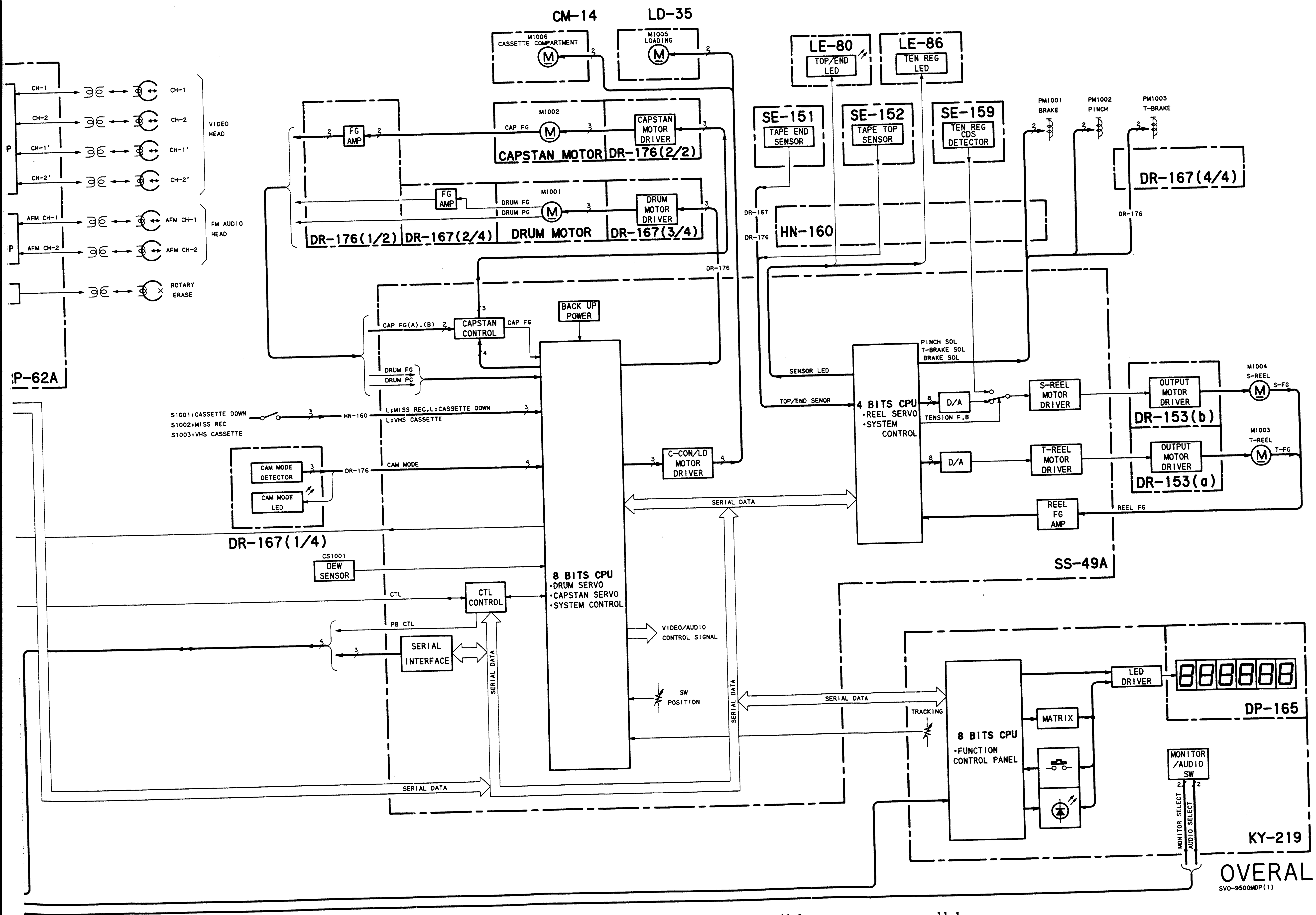
Location of CN and RV on RP-62A board. (A side)


E
D
C
B
A
1
6
1
CN804
RV201

SECTION 11
BLOCK DIAGRAMS

OVERALL


CN001
VIDEO IN
(THROUGH OUT)
CN002
S VIDEO IN
CN003
S VIDEO THROUGH
75Ω SW
S-Y
S-C
CN008
VIDEO OUT
CN005
S-VIDEO OUT
LINE V
COMP/S-Y VIDEO
LINE V
VIDEO OUTPUT
Y/C MIX
OUTPUT Y SELECT
EE S-Y
PB Y
YX FILTER /YNC
S-Y/S-C OUTPUT
OUTPUT C SELECT
EE Y
PB Y
CR Y
Y SELECT
SEP Y
DIGITAL Y/C SEP
SEP C
REC Y
PB+5V
PB
EE/REC
Y PROCESSOR
· FM MOD/DEMOD
· AGC&SYNC SEP
· DROPOUT DET
· EMPH/DE-EMPH
· NOISE CANCEL
S-VHS Y RF
PB Y RF
REC Y RF
SEP C
S-C
VO-37A
CNR C
CNR Y
CNR Y
CNR C
D/A CONV
Y ENHANCER CHROMA ENCODER
FIELD MEMORY
NOISE REDUCER
A/D CONV
READ/WRITE TIMING CONTROL
SYNC SEP& PULSE GEN
VM-12P
EE C
CR Y
PB C
CPI
QUASI BURST INSERT
CHROMA PROCESSOR
· ACC/APC/AFC/ACK
· BURST EMPH
· BURST DE-EMPH
· FREQ CONV
PB C RF
REC C RF
PB CROSSTALK CANCELLER
CR-39
SERIAL DATA
Y RF
C RF
AFM
REC/PB VIDEO HEAD AMP
CH-1
CH-2
CH-1'
CH-2'
REC/PB AFM HEAD AMP
AFM CH-1
AFM CH-2
ERASE OSC
RP-62A
AUDIO CH-1 LINE IN
CN004
AUDIO CH-2 LINE IN
AUDIO CH-1 LINE OUT
CN006
AUDIO CH-2 LINE IN
CN007
AUDIO MONITOR OUT
INPUT AMP
CH-1
CH-2
MONITOR OUT AELECT
CN1001 INDICATE
PB CTL
STROBE
CLOCK
DATA
DUS-442
CP-183
CH-1 AU LINE
CH-2 AU LINE
AUDIO LEVEL VOLUME
AFM CH-1 PROCESSOR
AFM CH-1 RF
AFM CH-2 PROCESSOR
AFM CH-2 RF
VOLTAGE CONTROLLED AMP
AFM PB RF(CH-1)
AFM PB RF(CH-2)
AFM REC RF
CH-1 MIC LED
CH-1 LAU SELECT AMP
L:AFM OUT
EE/PB CONTROL
CH-1 AU LINE
CH-1/MIX SELECT AMP
LAU PB HEAD AMP
LAU REC HEAD AMP
LAU CH-1 PROCESS
LAU CH-2 PROCESS
CH-2 AU LINE
CH-2/MIX SELECT AMP
LAU PB HEAD AMP
LAU REC HEAD AMP
AU CH-1(X)
AU CH-1(Y)
AU CH-2(X)
AU CH-2(Y)
ERASE BIAS OSC
ERASE
MONITOR SELECT
AUDIO SELECT
AU-161A
AH-28
CTL
AUDIO CH-1
AUDIO CH-2
AUDIO ERASE
FULL ERASE
CN003 MIC IN
CN001 REMOTE
CN002 REMOTE2
CN-633


CM-14
M1006
CASSETTE COMPARTMENT
LD-35
M1005
LOADING
LE-80
TOP/END LED
LE-86
TEN REG LED
SE-151
TAPE END SENSOR
SE-152
TAPE TOP SENSOR
SE-159
TEN REG CDS DETECTOR
PM1001
BRAKE
PM1002
PINCH
PM1003
T-BRAKE
DR-167(4/4)
DR-176
DR-167
HN-160
CH-1
CH-2
CH-1'
CH-2'
VIDEO HEAD
AFM CH-1
AFM CH-2
FM AUDIO HEAD
ROTARY ERASE
P-62A
M1002
CAP FG
CAPSTAN MOTOR DRIVER
CAPSTAN MOTOR
DR-176(2/2)
FG AMP
M1001
DRUM FG
DRUM PG
DRUM MOTOR DRIVER
DR-176(1/2)
DR-167(2/4)
DRUM MOTOR
DR-167(3/4)
BACK UP POWER
CAP FG(A).(B)
CAPSTAN CONTROL
CAP FG
S1001:CASSETTE DOWN
S1002:MISS REC
S1003:VHS CASSETTE
HN-160
L:MISS REC.L:CASSETTE DOWN
L:VHS CASSETTE
CAM MODE DETECTOR
CAM MODE LED
CAM MODE
C-CON/LD MOTOR DRIVER
DR-167(1/4)
CS1001
DEW SENSOR
CTL
CTL CONTROL
PB CTL
SERIAL INTERFACE
SERIAL DATA
8 BITS CPU
•DRUM SERVO
•CAPSTAN SERVO
•SYSTEM CONTROL
VIDEO/AUDIO CONTROL SIGNAL
SW POSITION
SENSOR LED
TOP/END SENOR
PINCH SOL
T-BRAKE SOL
BRAKE SOL
4 BITS CPU
•REEL SERVO
•SYSTEM CONTROL
D/A
TENSION F.B
S-REEL MOTOR DRIVER
T-REEL MOTOR DRIVER
OUTPUT MOTOR DRIVER
DR-153(b)
DR-153(a)
M1004
S-REEL
S-FG
M1003
T-REEL
T-FG
REEL FG AMP
REEL FG
SS-49A
TRACKING
8 BITS CPU
•FUNCTION CONTROL PANEL
MATRIX
LED DRIVER
DP-165
MONITOR /AUDIO SW
MONITOR SELECT
AUDIO SELECT
KY-219

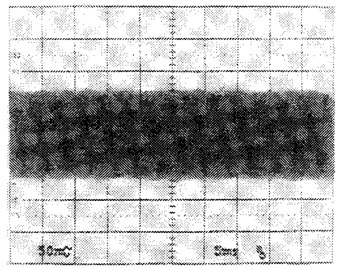
OVERALL

SVO-9500MDP(1)

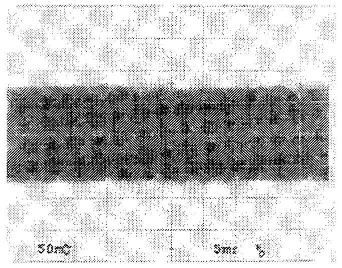
VIDEO & AFM HEAD AMP

Note : The mentioned items at waveform photograph of this section are measurement point, board location, and machine operation mode.

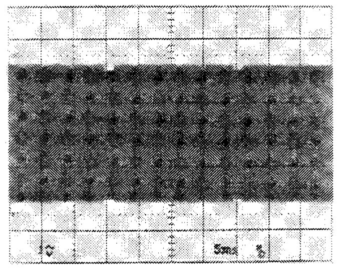
① CN804 pin 1 (C-1) REC mode



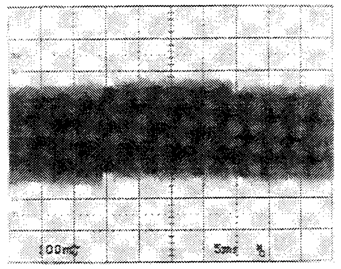
② CN804 pin 2 (C-1) PB mode (S)
CN804 pin 5 (C-1) (TRIG)



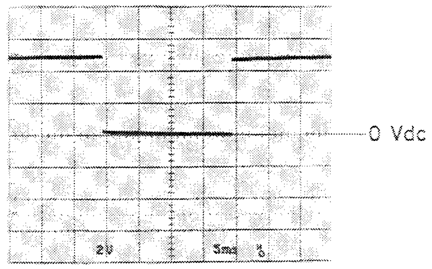
③ CN804 pin 3 (C-1) REC mode
CN804 pin 5 (C-1) (TRIG)



④ CN804 pin 4 (C-1) PB mode (N)
CN804 pin 5 (C-1) (TRIG)

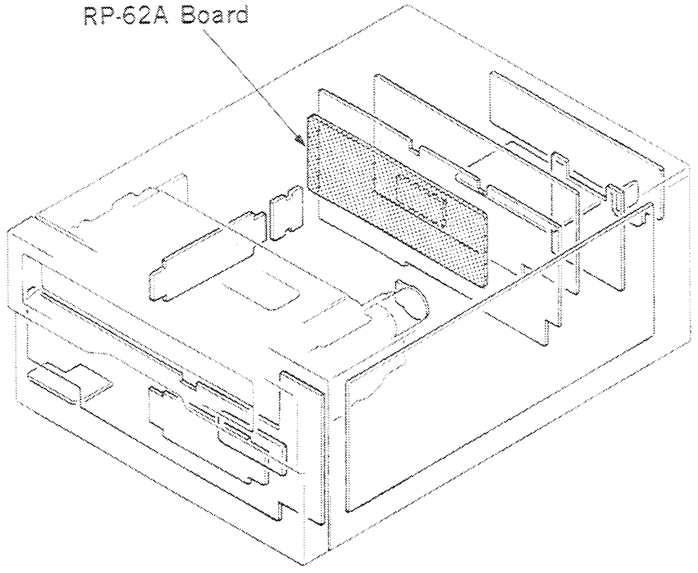


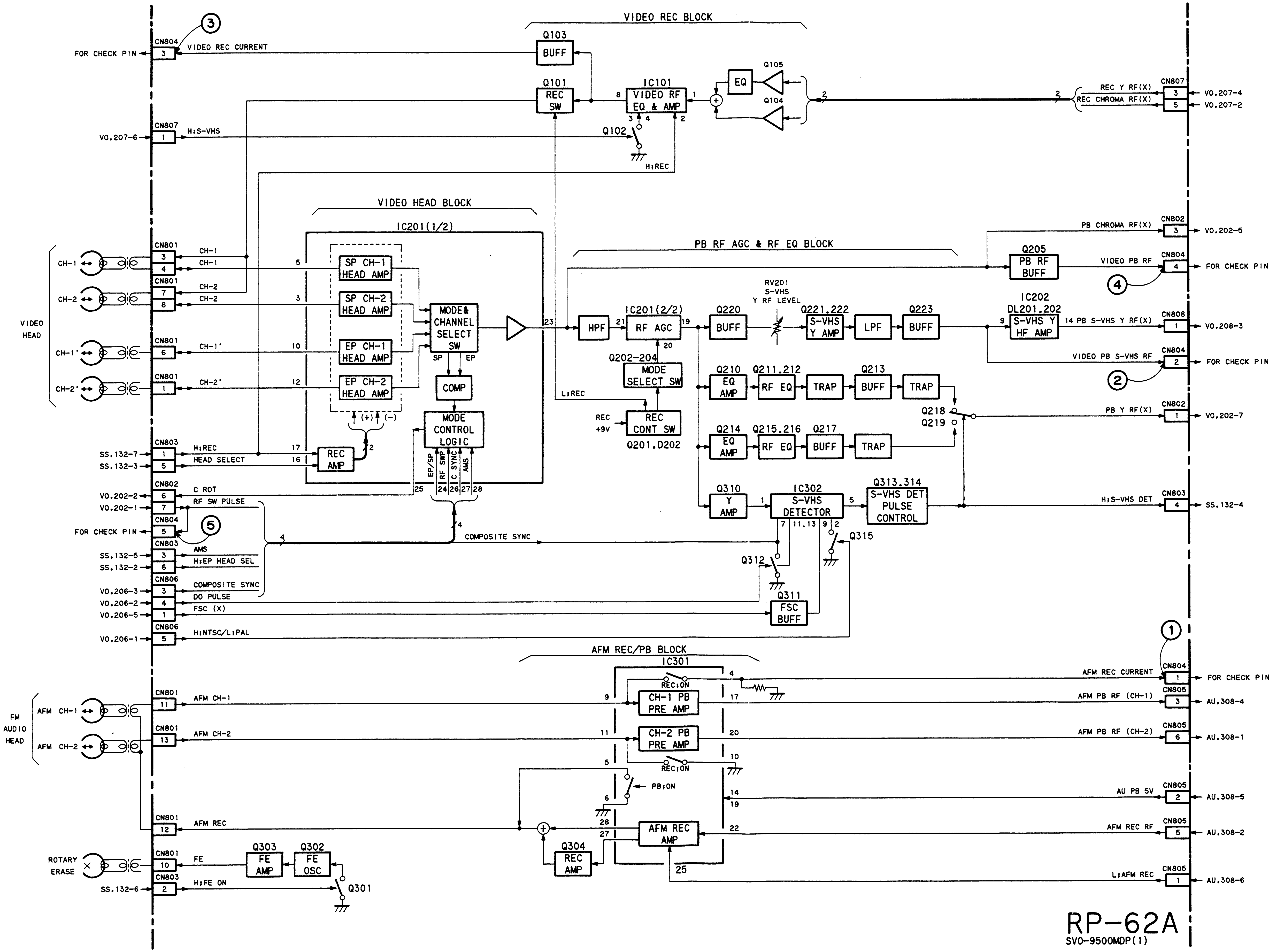
⑤ CN804 pin 5 (C-1) REC/PB mode



Measurement Condition

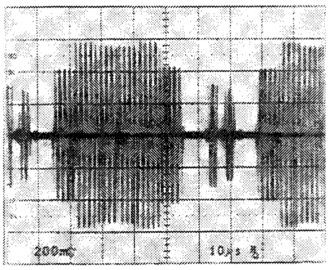
S-VIDEO IN : 75% color bars
REC mode : S-VHS
PB mode (S) : KRV-45HPS
PB mode (N) : KRV-45PS



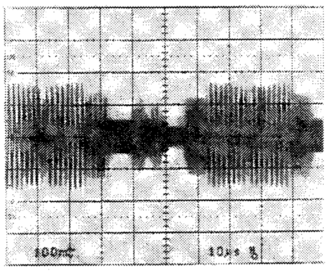

VIDEO REC BLOCK
Q103
BUFF
CN804
3
FOR CHECK PIN
VIDEO REC CURRENT
③
Q101
REC SW
IC101
VIDEO RF EQ & AMP
8
1
3
4
2
Q102
H;REC
EQ
Q105
Q104
2
REC Y RF(X)
REC CHROMA RF(X)
CN807
3
5
VO.207-4
VO.207-2
CN807
1
VO.207-6
H;S-VHS
VIDEO HEAD BLOCK
IC201(1/2)
CN801
CH-1
CH-1
CH-2
CH-2
CH-1'
CH-2'
VIDEO HEAD
5
3
10
12
SP CH-1 HEAD AMP
SP CH-2 HEAD AMP
EP CH-1 HEAD AMP
EP CH-2 HEAD AMP
MODE& CHANNEL SELECT SW
SP
EP
COMP
MODE CONTROL LOGIC
(+)
(-)
2
23
CN803
H;REC
HEAD SELECT
SS.132-7
SS.132-3
17
16
REC AMP
EP/SP
RF SWP
C SYNC
AMS
25
24
26
27
28
CN802
C ROT
RF SW PULSE
VO.202-2
VO.202-1
CN804
5
FOR CHECK PIN
⑤
CN803
AMS
H;EP HEAD SEL
SS.132-5
SS.132-2
CN806
COMPOSITE SYNC
DO PULSE
FSC (X)
VO.206-3
VO.206-2
VO.206-5
CN806
H;NTSC/L;PAL
VO.206-1
4
4
COMPOSITE SYNC
PB RF AGC & RF EQ BLOCK
HPF
21
IC201(2/2)
RF AGC
19
20
Q202-204
MODE SELECT SW
L;REC
REC +9V
REC CONT SW
Q201,D202
Q220
BUFF
RV201 S-VHS Y RF LEVEL
Q221.222
S-VHS Y AMP
LPF
Q223
BUFF
Q205
PB RF BUFF
PB CHROMA RF(X)
CN802
3
VO.202-5
VIDEO PB RF
CN804
4
FOR CHECK PIN
④
IC202
DL201.202
9
S-VHS Y HF AMP
14 PB S-VHS Y RF(X)
CN808
1
VO.208-3
VIDEO PB S-VHS RF
CN804
2
FOR CHECK PIN
②
Q210
EQ AMP
Q211.212
RF EQ
TRAP
Q213
BUFF
TRAP
Q218
Q219
PB Y RF(X)
CN802
1
VO.202-7
Q214
EQ AMP
Q215.216
RF EQ
Q217
BUFF
TRAP
Q310
Y AMP
1
IC302
S-VHS DETECTOR
5
7
11.13
9
2
Q313.314
S-VHS DET PULSE CONTROL
H;S-VHS DET
CN803
4
SS.132-4
Q315
Q312
Q311
FSC BUFF
AFM REC/PB BLOCK
IC301
REC;ON
4
①
AFM REC CURRENT
CN804
1
FOR CHECK PIN
CN801
AFM CH-1
AFM CH-2
FM AUDIO HEAD
11
13
9
11
CH-1 PB PRE AMP
CH-2 PB PRE AMP
17
20
10
AFM PB RF (CH-1)
AFM PB RF (CH-2)
CN805
3
6
AU.308-4
AU.308-1
5
6
PB;ON
14
19
AU PB 5V
CN805
2
AU.308-5
CN801
12
AFM REC
28
27
22
AFM REC AMP
AFM REC RF
CN805
5
AU.308-2
Q304
REC AMP
25
L;AFM REC
CN805
1
AU.308-6
ROTARY ERASE
CN801
10
FE
Q303
FE AMP
Q302
FE OSC
CN803
2
H;FE ON
SS.132-6
Q301

RP-62A
SVO-9500MDP(1)

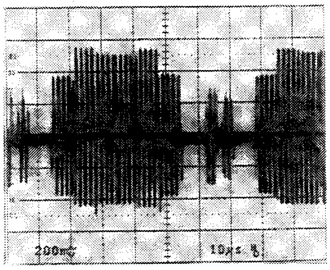
① TP607 (E-3*) STOP (E-E) mode



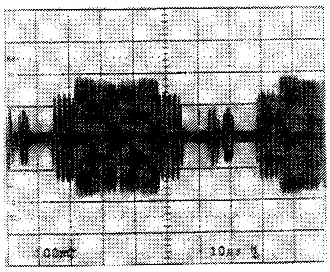
TP607 (E-3*) PB mode



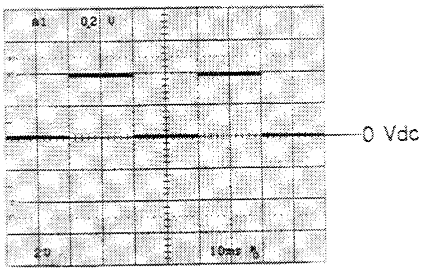
② TP601 (F-3*) STOP (E-E) mode



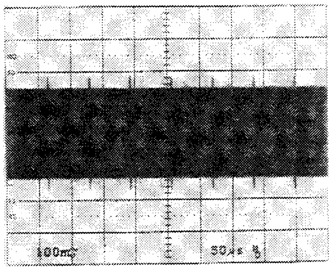
TP601 (F-3*) PB mode



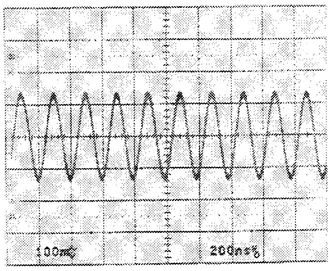
③ TP610 (G-3*) REC/PB mode



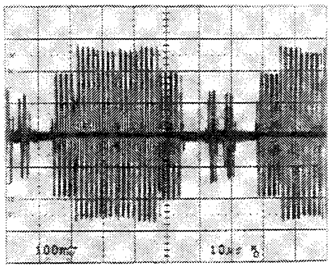
④ TP608 (D-3*)



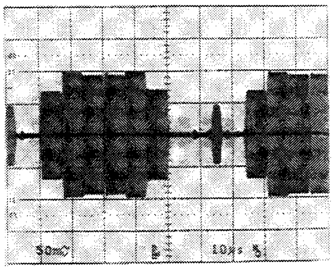
TP608 (D-3*) (fsc part)



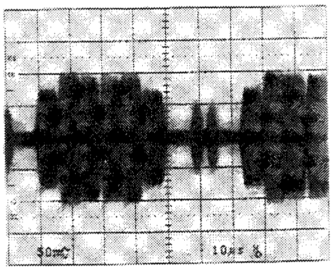
⑤ TP603 (G-3*) STOP (E-E) mode



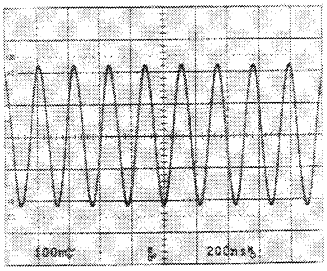
⑥ TP605 (F-3*) STOP (E-E) mode



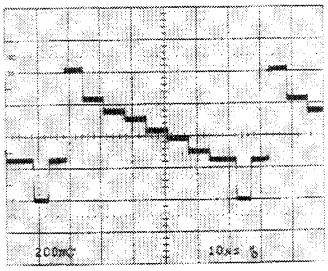
TP605 (F-3*) PB mode



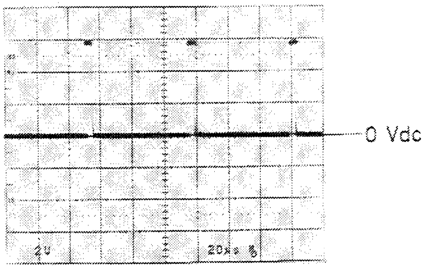
⑦ TP602 (F-2*)



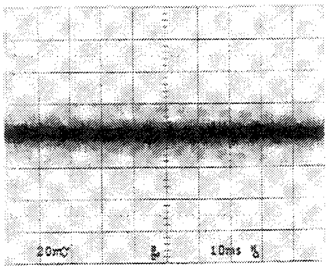
⑧ CN212 pin 18 (H-2*)
STOP (E-E) mode



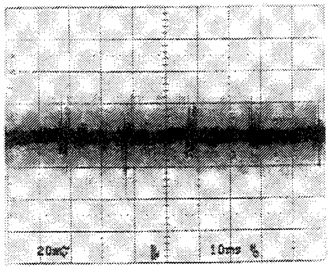
⑨ IC604 pin 4 (A-2*)



⑩ TP606 (E-2*) STOP (E-E) mode

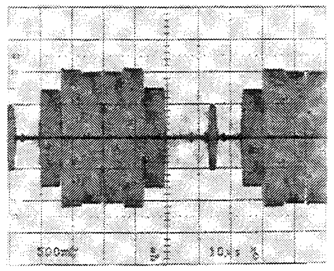


TP606 (E-2*) PB mode

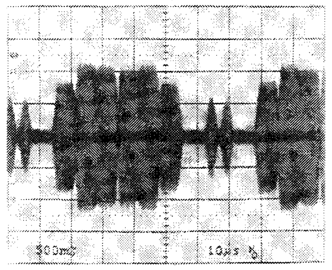


CHROMA PROCESS

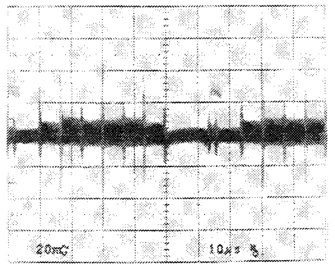
⑪ TP501 (B-3∗) STOP (E-E) mode
TP502 (B-2∗) STOP (E-E) mode



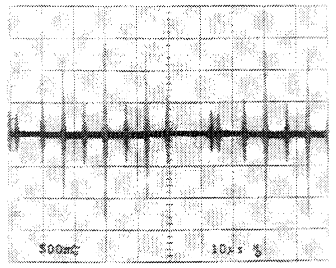
TP501 (B-3∗) PB mode
TP502 (B-2∗) PB mode



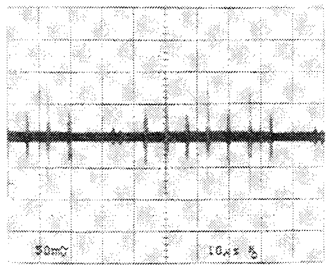
⑫ TP801 (B-1∗) STOP (E-E) mode



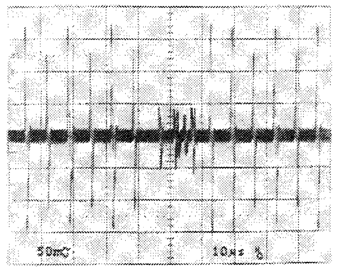
⑬ TP820 (B-1∗) STOP (E-E) mode



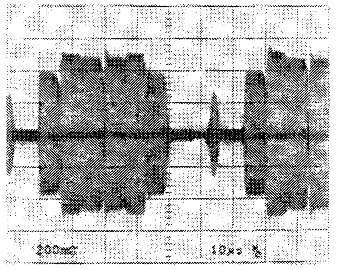
⑭ TP870 (E-1∗) STOP (E-E) mode



⑮ TP850 (E-1∗) STOP (E-E) mode



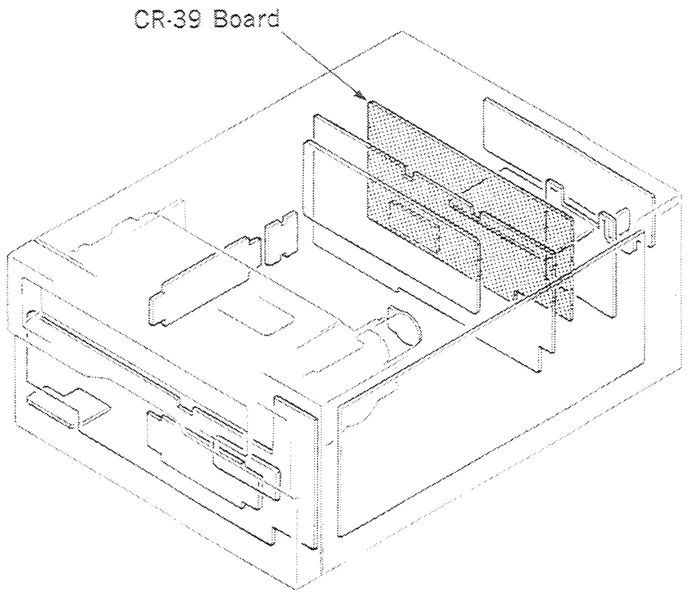
⑯ TP890 (E-1∗) PB mode

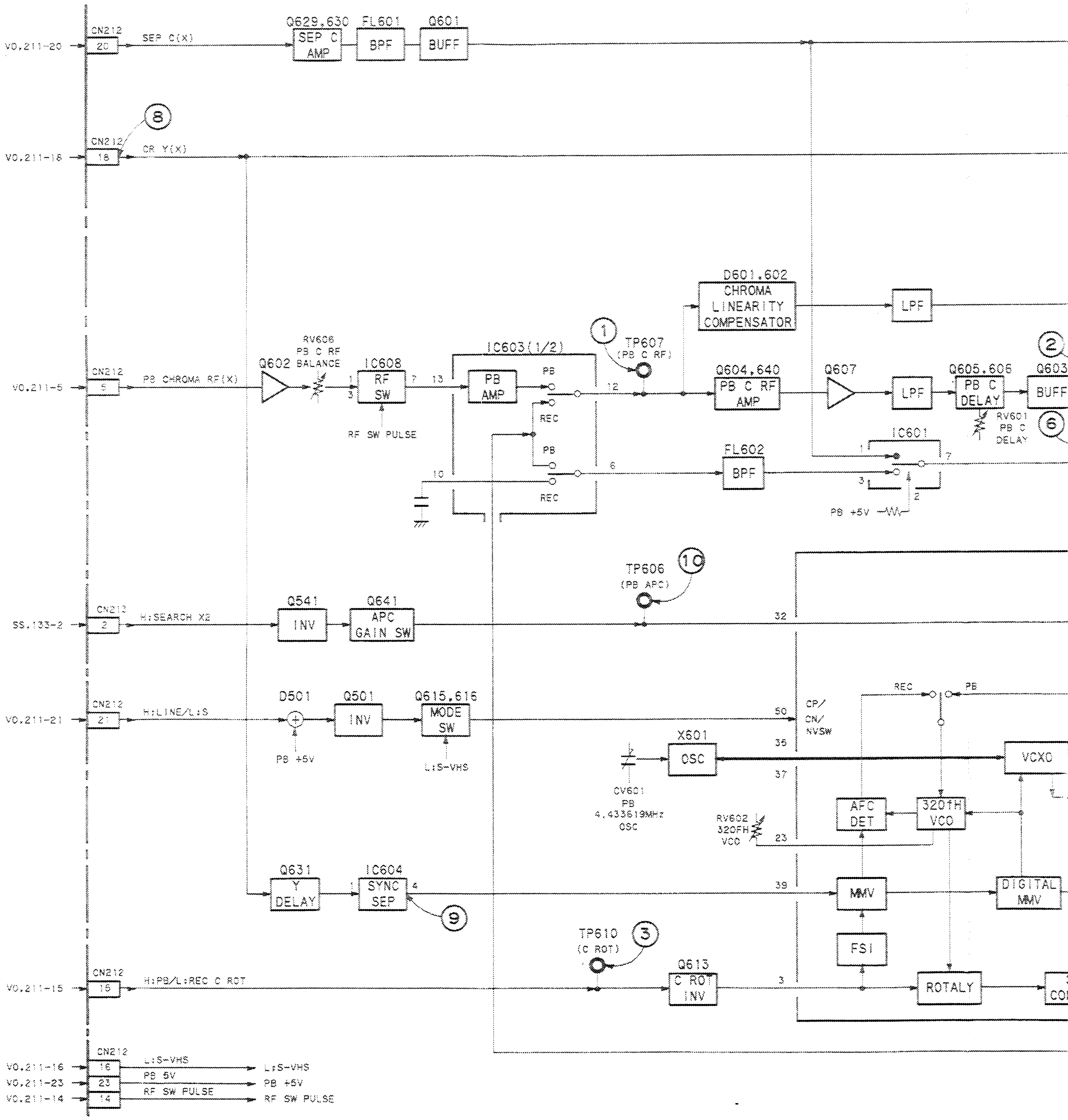


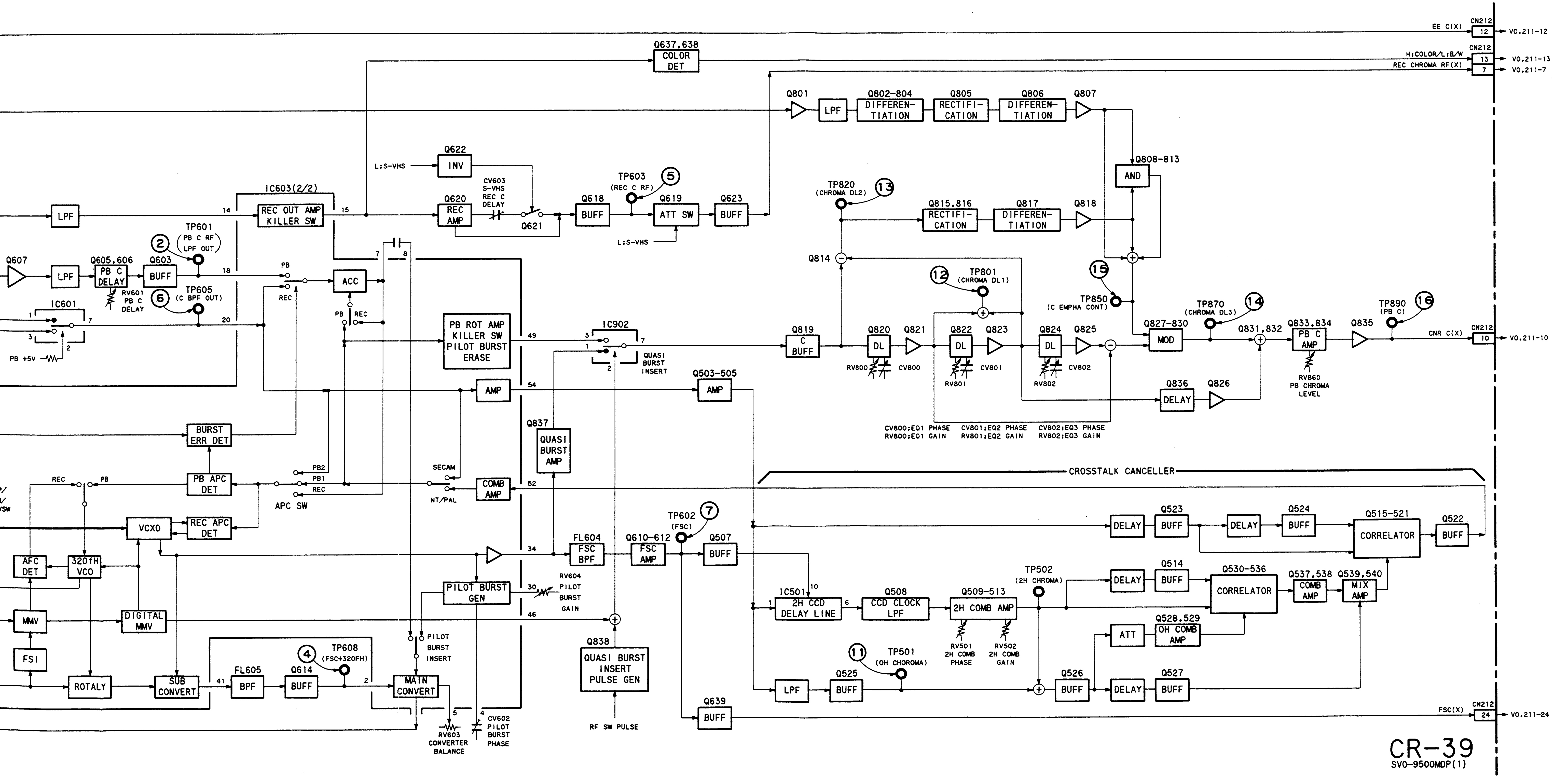
Measurement Condition

S-VIDEO IN: 75% color bars
STOP (E-E) mode: S-VHS
REC mode: S-VHS
PB mode: KRV-45HPS

∗ mark; B SIDE mount

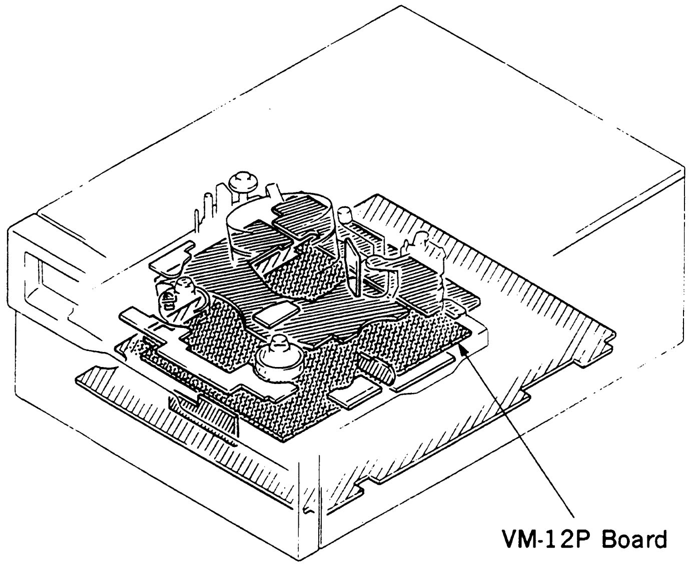


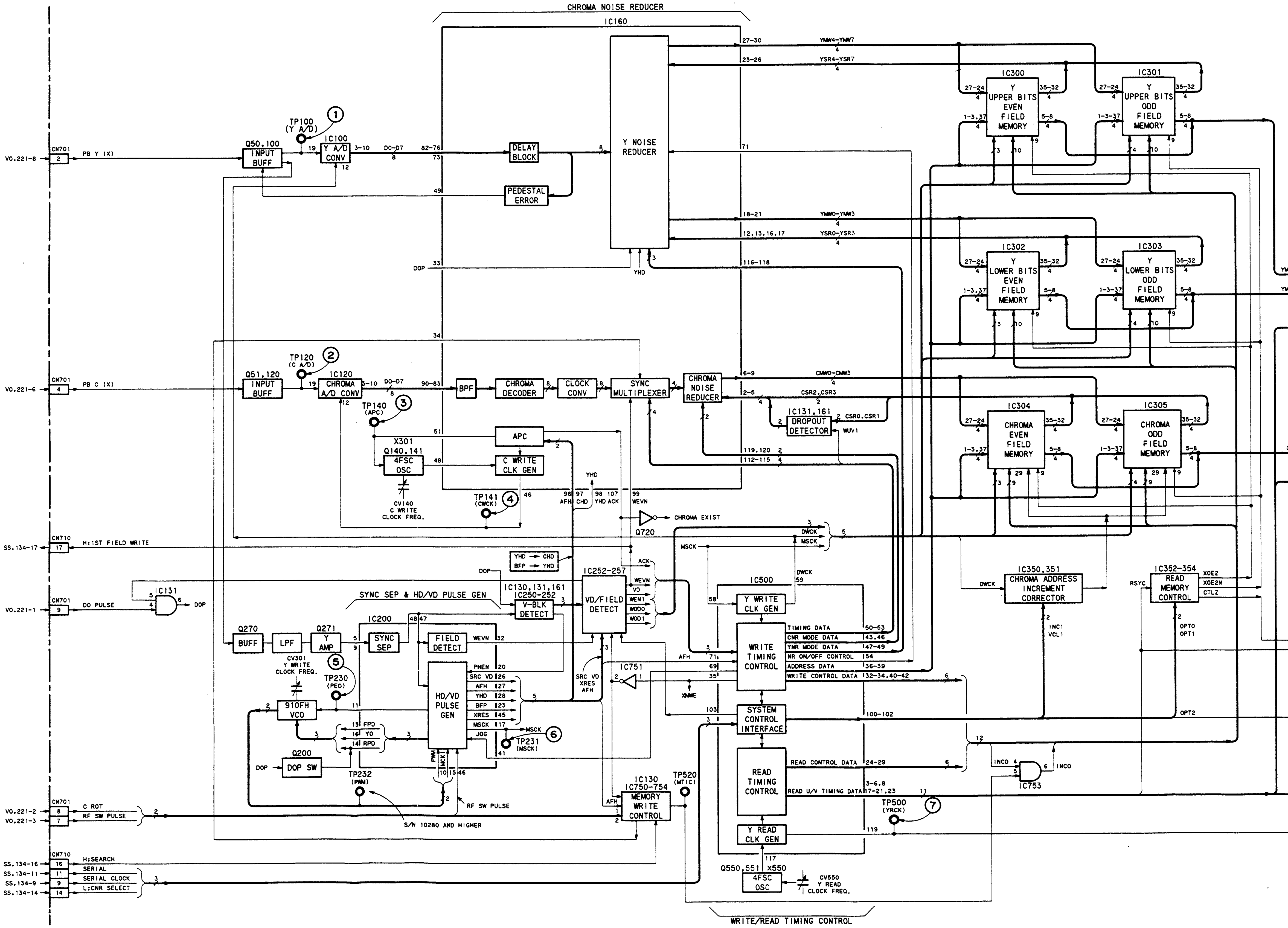

VO.211-20
CN212
20
SEP C(X)
Q629,630
SEP C AMP
FL601
BPF
Q601
BUFF
⑧
VO.211-18
CN212
18
CR Y(X)
D601,602
CHROMA LINEARITY COMPENSATOR
LPF
VO.211-5
CN212
5
PB CHROMA RF(X)
Q602
RV606
PB C RF BALANCE
IC608
RF SW
RF SW PULSE
IC603(1/2)
PB AMP
PB
REC
①
TP607
(PB C RF)
Q604,640
PB C RF AMP
Q607
LPF
Q605,606
PB C DELAY
RV601
PB C DELAY
②
⑥
Q603
BUFF
FL602
BPF
IC601
PB +5V
TP606
(PB APC)
⑩
SS.133-2
CN212
2
H:SEARCH X2
Q541
INV
Q641
APC GAIN SW
VO.211-21
CN212
21
H:LINE/L:S
D501
PB +5V
Q501
INV
Q615,616
MODE SW
L:S-VHS
CP/
CN/
NVSW
X601
OSC
CV601
PB
4.433619MHz
OSC
VCXO
AFC DET
320fH VCO
RV602
320FH
VCO
REC
PB
Q631
Y DELAY
IC604
SYNC SEP
⑨
MMV
DIGITAL MMV
FSI
TP610
(C ROT)
③
VO.211-15
CN212
15
H:PB/L:REC C ROT
Q613
C ROT INV
ROTALY
CN212
VO.211-16
VO.211-23
VO.211-14
16
23
14
L:S-VHS
PB 5V
RF SW PULSE
L:S-VHS
PB +5V
RF SW PULSE

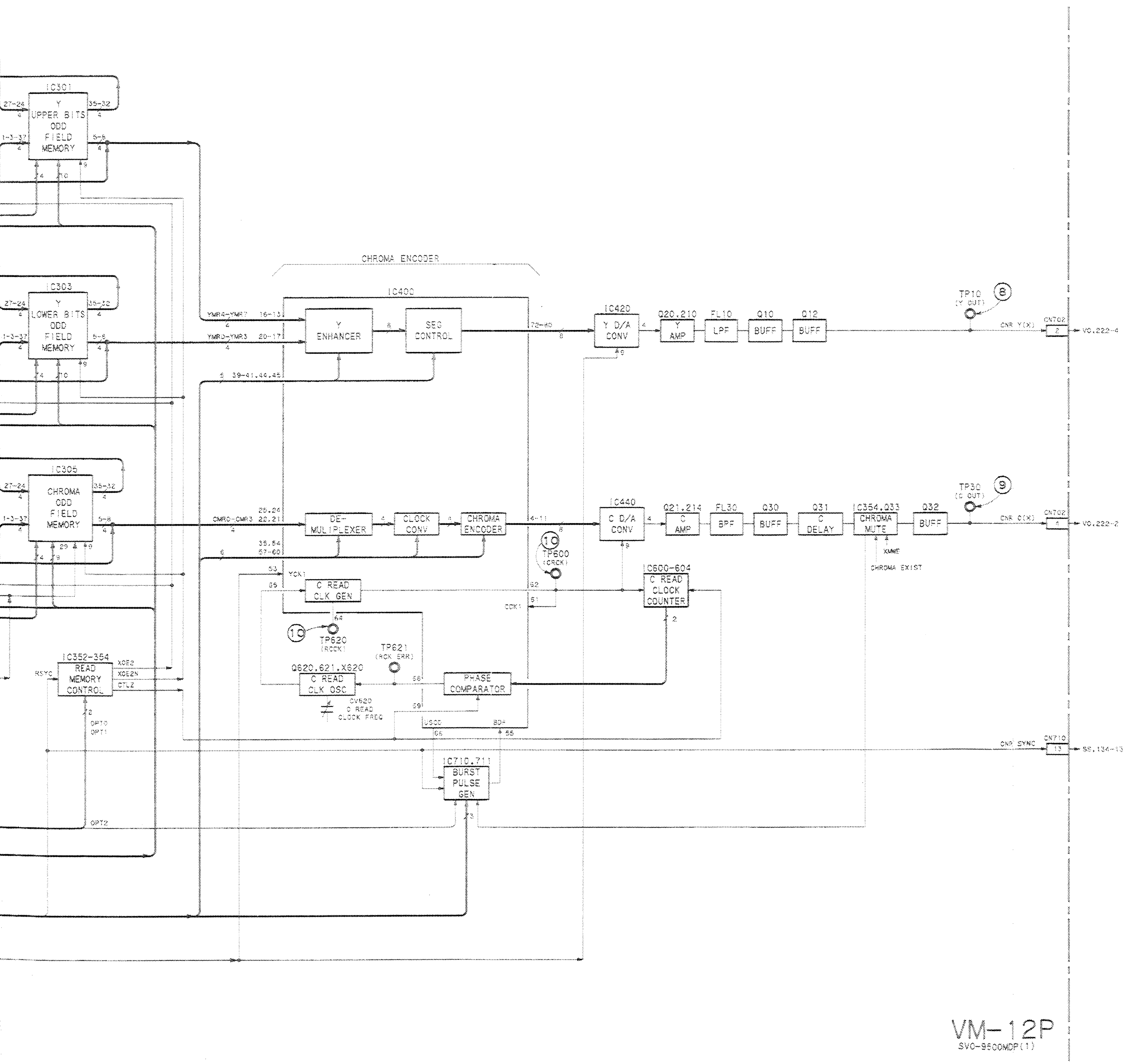

EE C(X)
CN212 12 VO.211-12
CN212 13 VO.211-13
H:COLOR/L:B/W
REC CHROMA RF(X)
7 VO.211-7
Q637,638 COLOR DET
Q801 LPF
Q802-804 DIFFEREN-TIATION
Q805 RECTIFI-CATION
Q806 DIFFEREN-TIATION
Q807
Q808-813 AND
Q622 INV
L:S-VHS
CV603 S-VHS REC C DELAY
Q620 REC AMP
Q621
TP603 (REC C RF) 5
Q618 BUFF
Q619 ATT SW
Q623 BUFF
IC603(2/2) REC OUT AMP KILLER SW
14 15
LPF
TP601 (PB C RF / LPF OUT) 2
Q607 LPF
Q605,606 PB C DELAY
RV601 PB C DELAY
Q603 BUFF
18
TP605 (C BPF OUT) 6
20
IC601
PB +5V
PB REC
ACC
7 8
PB ROT AMP KILLER SW PILOT BURST ERASE
49
IC902
QUASI BURST INSERT
TP820 (CHROMA DL2) 13
Q815,816 RECTIFI-CATION
Q817 DIFFEREN-TIATION
Q818
Q814
TP801 (CHROMA DL1) 12
TP850 (C EMPHA CONT) 15
Q819 C BUFF
Q820 DL
Q821
Q822 DL
Q823
Q824 DL
Q825
RV800 CV800 RV801 CV801 RV802 CV802
Q827-830 MOD
TP870 (CHROMA DL3) 14
Q831,832
Q833,834 PB C AMP
RV860 PB CHROMA LEVEL
Q835
TP890 (PB C) 16
CNR C(X)
CN212 10 VO.211-10
Q836 DELAY
Q826
CV800:EQ1 PHASE RV800:EQ1 GAIN
CV801:EQ2 PHASE RV801:EQ2 GAIN
CV802:EQ3 PHASE RV802:EQ3 GAIN
AMP 54
Q503-505 AMP
Q837 QUASI BURST AMP
BURST ERR DET
CROSSTALK CANCELLER
REC PB
PB APC DET
PB2 PB1 REC
APC SW
SECAM NT/PAL
COMB AMP 52
VCXO
REC APC DET
TP602 (FSC) 7
Q523 DELAY BUFF
Q524 DELAY BUFF
Q515-521 CORRELATOR
Q522 BUFF
AFC DET
320fH VCO
34
FL604 FSC BPF
Q610-612 FSC AMP
Q507 BUFF
PILOT BURST GEN
30
RV604 PILOT BURST GAIN
46
TP502 (2H CHROMA)
Q514 DELAY BUFF
Q530-536 CORRELATOR
Q537,538 COMB AMP
Q539,540 MIX AMP
IC501 2H CCD DELAY LINE 10 1 6
Q508 CCD CLOCK LPF
Q509-513 2H COMB AMP
Q528,529 ATT 0H COMB AMP
MMV
DIGITAL MMV
FSI
PILOT BURST INSERT
RV501 2H COMB PHASE
RV502 2H COMB GAIN
TP608 (FSC+320FH) 4
Q838 QUASI BURST INSERT PULSE GEN
TP501 (0H CHOROMA) 11
ROTALY
SUB CONVERT 41
FL605 BPF
Q614 BUFF
2
MAIN CONVERT
5 4
RV603 CONVERTER BALANCE
CV602 PILOT BURST PHASE
RF SW PULSE
Q525 LPF BUFF
Q526 BUFF
DELAY
Q527 BUFF
Q639 BUFF
FSC(X)
CN212 24 VO.211-24

CR-39
SVO-9500MDP(1)

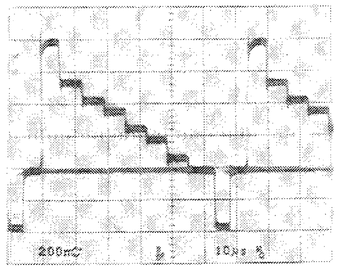
CHROMA NOISE REDUCER


VM-12P Board

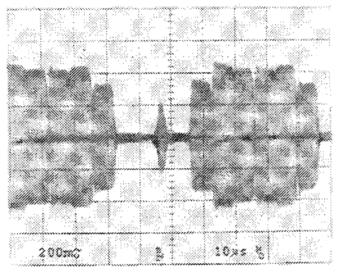

CHROMA NOISE REDUCER
IC160
CN701
VO.221-8
PB Y (X)
Q50,100
INPUT BUFF
TP100 (Y A/D)
①
IC100
Y A/D CONV
DO-D7
DELAY BLOCK
PEDESTAL ERROR
Y NOISE REDUCER
YHD
DOP
YMW4-YMW7
YSR4-YSR7
YMW0-YMW3
YSR0-YSR3
IC300
Y UPPER BITS EVEN FIELD MEMORY
IC301
Y UPPER BITS ODD FIELD MEMORY
IC302
Y LOWER BITS EVEN FIELD MEMORY
IC303
Y LOWER BITS ODD FIELD MEMORY
IC304
CHROMA EVEN FIELD MEMORY
IC305
CHROMA ODD FIELD MEMORY
VO.221-6
PB C (X)
Q51,120
INPUT BUFF
TP120 (C A/D)
②
IC120
CHROMA A/D CONV
BPF
CHROMA DECODER
CLOCK CONV
SYNC MULTIPLEXER
CHROMA NOISE REDUCER
CMW0-CMW3
CSR2,CSR3
IC131,161
DROPOUT DETECTOR
CSR0,CSR1
WUV1
TP140 (APC)
③
APC
X301
Q140,141
4FSC OSC
C WRITE CLK GEN
CV140
C WRITE CLOCK FREQ.
TP141 (CWCK)
④
Q720
CHROMA EXIST
DWCK
MSCK
CN710
SS.134-17
H:1ST FIELD WRITE
IC131
VO.221-1
DO PULSE
DOP
YHD → CHD
BFP → YHD
IC130,131,161
IC250-252
V-BLK DETECT
SYNC SEP & HD/VD PULSE GEN
IC252-257
VD/FIELD DETECT
ACK
WEVN
VD
WEN1
WODO
WOD1
IC500
Y WRITE CLK GEN
IC350,351
CHROMA ADDRESS INCREMENT CORRECTOR
INC1
VCL1
IC352-354
READ MEMORY CONTROL
RSYC
XOE2
XOE2N
CTLZ
OPT0
OPT1
OPT2
Q270
BUFF
LPF
Q271
Y AMP
IC200
SYNC SEP
FIELD DETECT
HD/VD PULSE GEN
PHEN
SRC VD
AFH
BFP
XRES
MSCK
JOG
PWM
MCK1
CV301
Y WRITE CLOCK FREQ.
TP230 (PEO)
⑤
910FH VCO
FPD
YO
RPD
Q200
DOP SW
TP232 (PWM)
TP231 (MSCK)
⑥
IC751
SRC VD
XRES
AFH
XWWE
WRITE TIMING CONTROL
TIMING DATA
CNR MODE DATA
YNR MODE DATA
NR ON/OFF CONTROL
ADDRESS DATA
WRITE CONTROL DATA
SYSTEM CONTROL INTERFACE
READ TIMING CONTROL
READ CONTROL DATA
READ U/V TIMING DATA
INCO
IC753
TP500 (YRCK)
⑦
Y READ CLK GEN
Q550,551
X550
4FSC OSC
CV550
Y READ CLOCK FREQ.
IC130
IC750-754
MEMORY WRITE CONTROL
TP520 (MTIC)
VO.221-2
VO.221-3
C ROT
RF SW PULSE
S/N 10280 AND HIGHER
SS.134-16
SS.134-11
SS.134-9
SS.134-14
H:SEARCH
SERIAL
SERIAL CLOCK
L:CNR SELECT
WRITE/READ TIMING CONTROL


IC301
Y UPPER BITS ODD FIELD MEMORY
IC303
Y LOWER BITS ODD FIELD MEMORY
IC305
CHROMA ODD FIELD MEMORY
CHROMA ENCODER
IC400
Y ENHANCER
SEG CONTROL
IC420
Y D/A CONV
Q20,210
Y AMP
FL10
LPF
Q10
BUFF
Q12
BUFF
TP10 (Y OUT) ⑧
CNR Y(X)
CN702
VO.222-4
DE-MULTIPLEXER
CLOCK CONV
CHROMA ENCODER
IC440
C D/A CONV
Q21,214
C AMP
FL30
BPF
Q30
BUFF
Q31
C DELAY
IC354,Q33
CHROMA MUTE
Q32
BUFF
TP30 (C OUT) ⑨
CNR C(X)
VO.222-2
CHROMA EXIST
⑩ TP600 (CRCK)
IC600-604
C READ CLOCK COUNTER
C READ CLK GEN
⑩ TP620 (RCCK)
TP621 (RCK ERR)
Q620,621,X620
C READ CLK OSC
CV620 C READ CLOCK FREQ
PHASE COMPARATOR
IC352-354
READ MEMORY CONTROL
IC710,711
BURST PULSE GEN
CNR SYNC
CN710
SE.134-13
VM-12P
SVO-9500MDP(1)

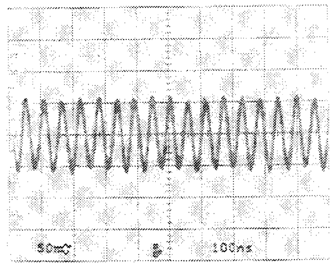
① TP100 (B-5) PB mode



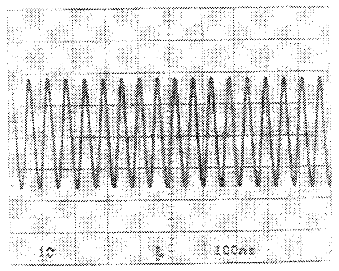
② TP120 (D-5) PB mode



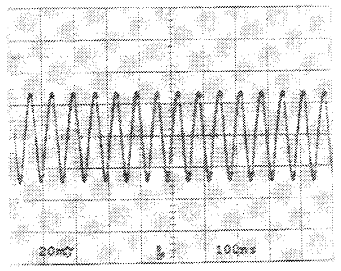
③ TP140 (B-4)



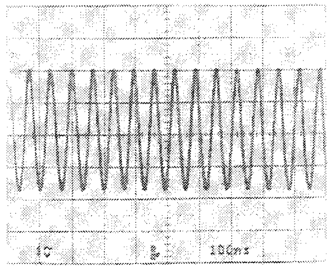
④ TP141 (B-4)



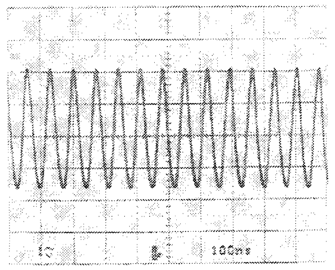
⑤ TP230 (E-5)



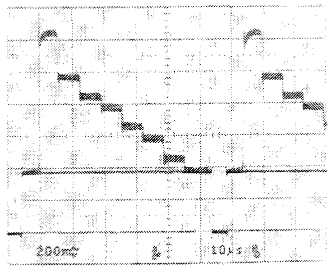
⑥ TP231 (D-4)



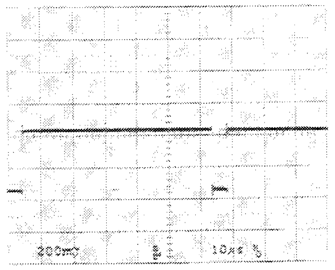
⑦ TP500 (F-1)



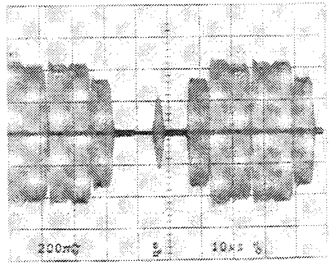
⑧ TP10 (A-1) PB mode



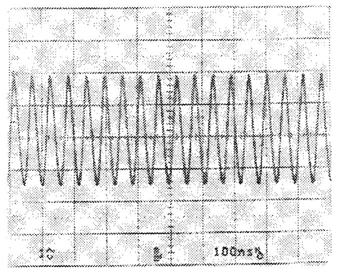
TP10 (A-1) STOP (E-E) mode



⑨ TP30 (A-1) PB mode

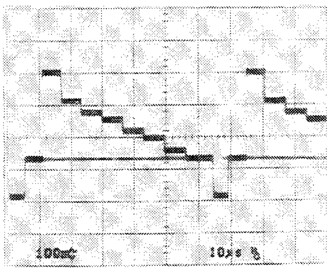


⑩ TP600 (D-1)
TP620 (C-1)

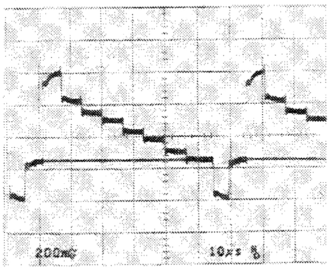


Measurement Condition
PB mode: KRV-45HPS
STOP (E-E) mode: S-VHS

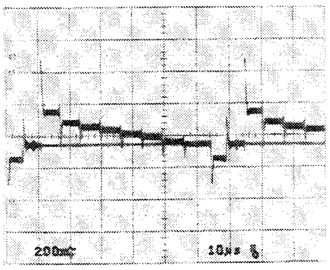
① TP203 (G-5*) STOP (E-E) mode



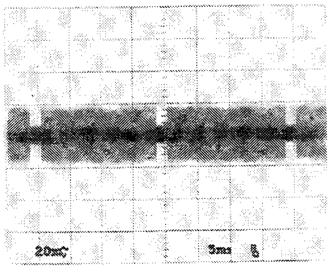
② TP201 (E-5*) STOP (E-E) mode



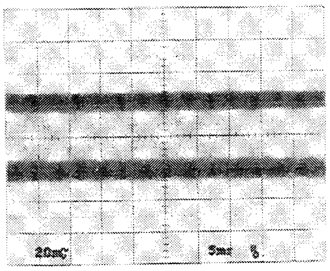
③ TP101 (K-3*) STOP (E-E) mode



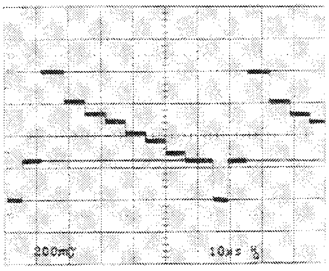
④ TP210 (J-1*) STOP (E-E) mode



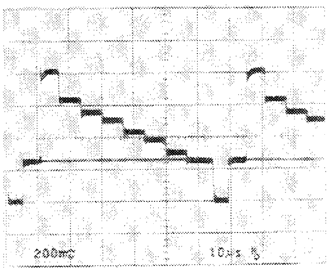
⑤ TP202 (L-1*) STOP (E-E) mode



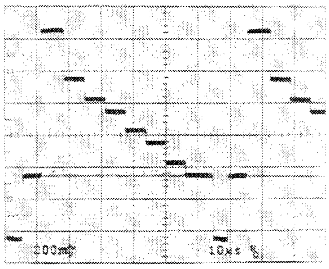
⑥ TP301 (C-5*) STOP (E-E) mode



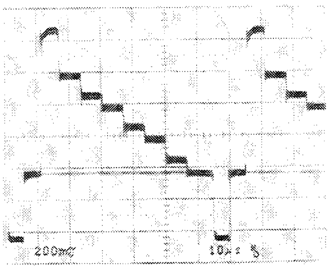
TP301 (C-5*) PB mode



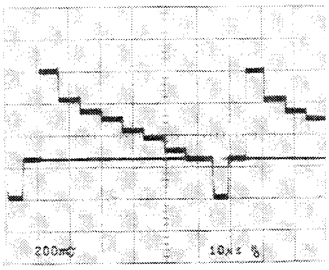
⑦ TP302 (A-5*) STOP (E-E) mode



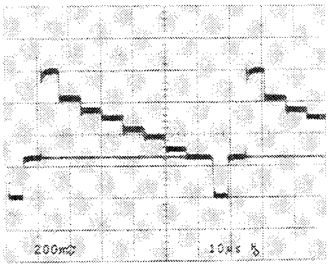
TP302 (A-5*) PB mode



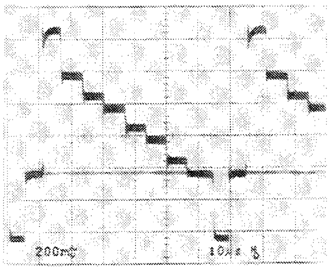
⑧ TP303 (D-4*) STOP (E-E) mode



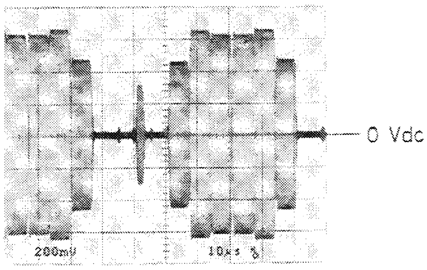
TP303 (D-4*) PB mode



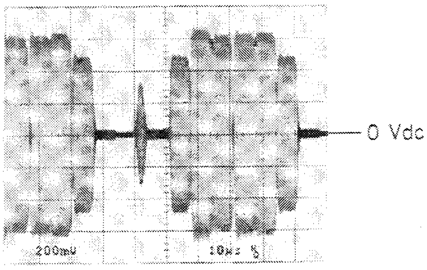
⑨ TP304 (D-2*) PB mode



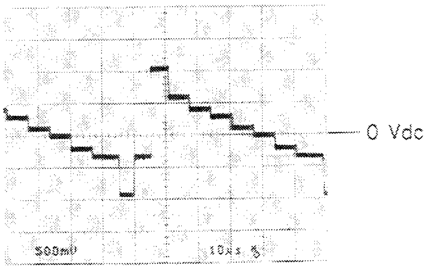
⑩ TP491 (H-1*) STOP (E-E) mode



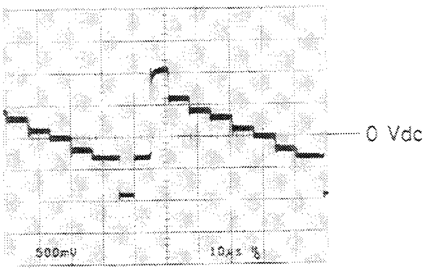
TP491 (H-1*) PB mode



⑪ TP492 (G-1*) STOP (E-E) mode



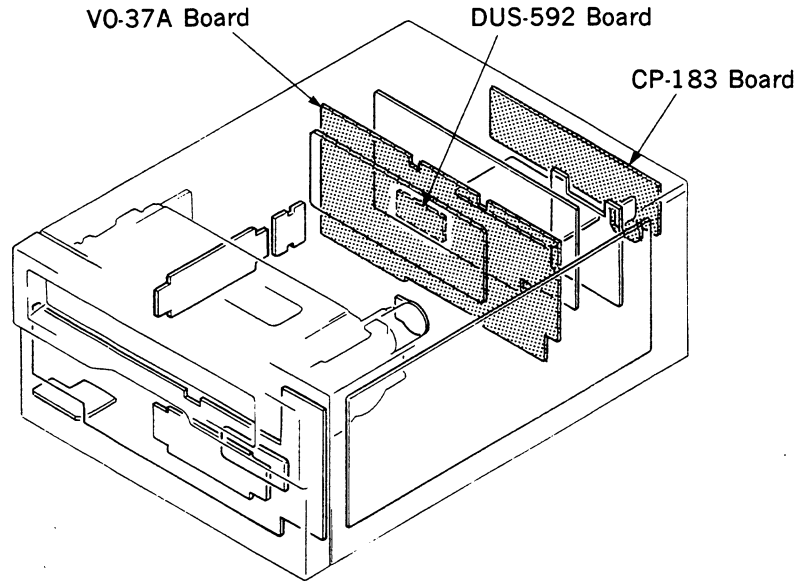
TP492 (G-1*) PB mode

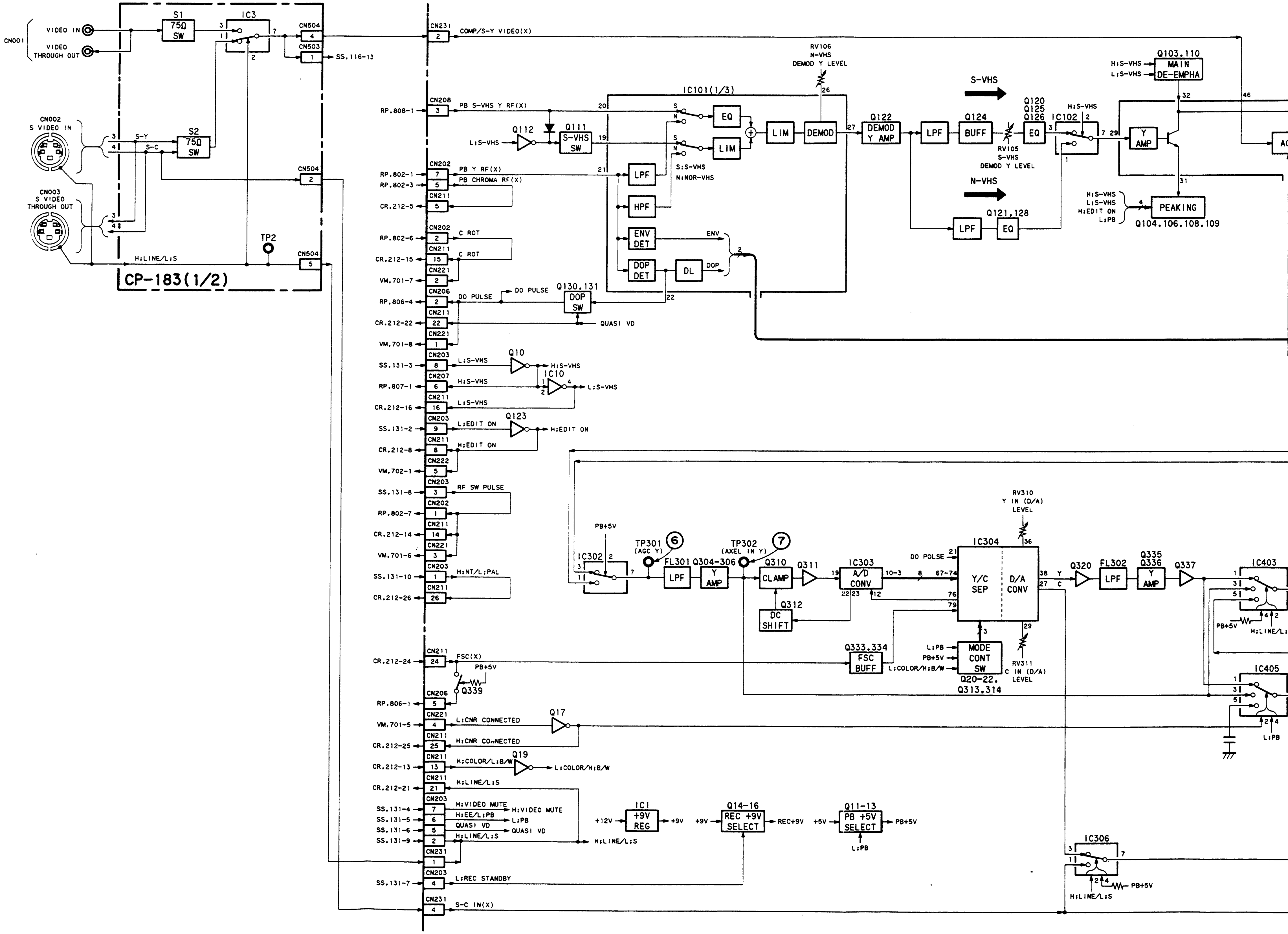


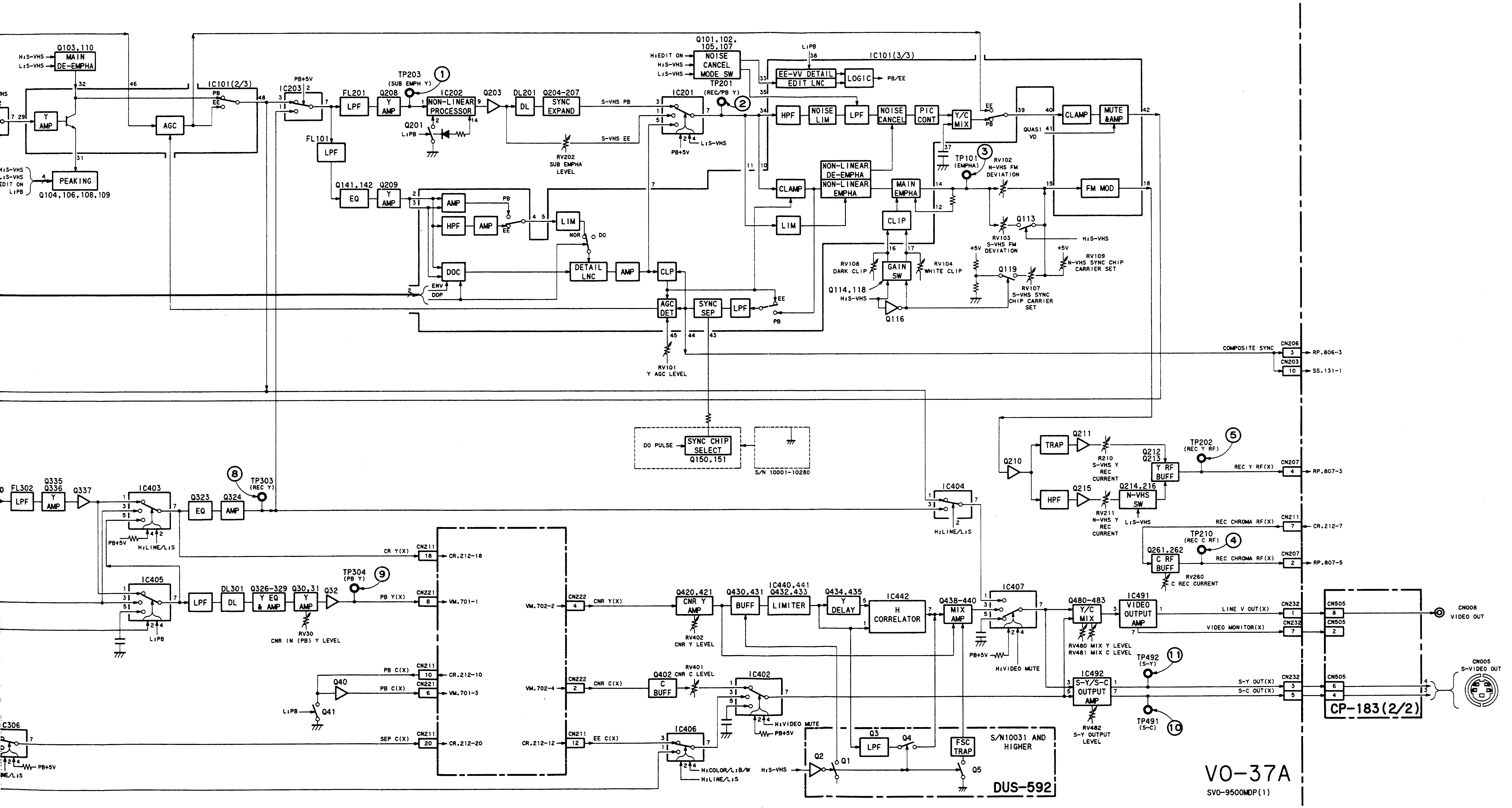
Measurement Condition
S-VIDEO IN: 75% color bars
STOP (E-E) mode: S-VHS
PB mode: KRV-45HPS

* mark; B SIDE mount

Y/C VIDEO PROCESS


VO-37A Board
DUS-592 Board
CP-183 Board

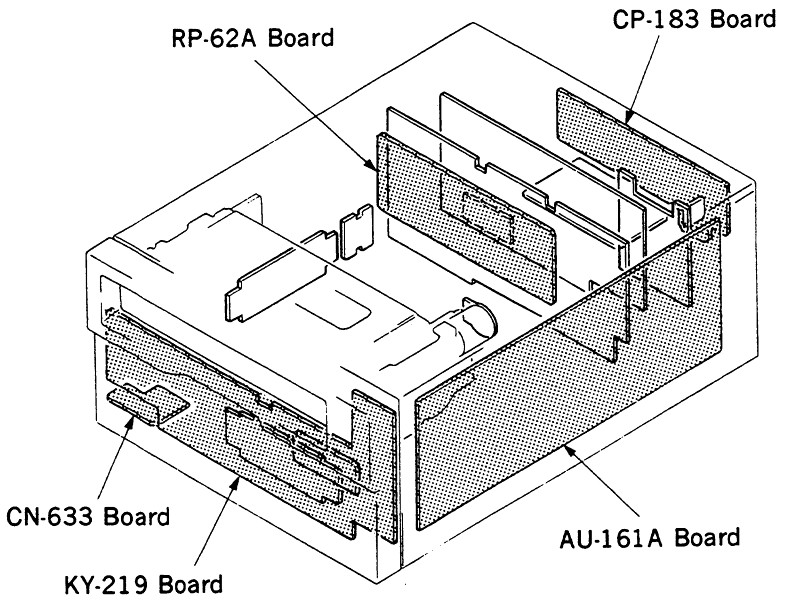

CN001
VIDEO IN
VIDEO THROUGH OUT
CN002 S VIDEO IN
CN003 S VIDEO THROUGH OUT
S1 75Ω SW
S2 75Ω SW
IC3
S-Y
S-C
TP2
H:LINE/L:S
CP-183(1/2)
CN504
CN503
SS.116-13
CN231
COMP/S-Y VIDEO(X)
CN208
PB S-VHS Y RF(X)
RP.808-1
CN202
PB Y RF(X)
PB CHROMA RF(X)
RP.802-1
RP.802-3
CN211
CR.212-5
C ROT
RP.802-6
CR.212-15
CN221
VM.701-7
CN206
DO PULSE
RP.806-4
CR.212-22
VM.701-8
Q130,131
DOP SW
QUASI VD
CN203
SS.131-3
L:S-VHS
H:S-VHS
Q10
IC10
CN207
RP.807-1
CR.212-16
SS.131-2
L:EDIT ON
H:EDIT ON
Q123
CR.212-8
CN222
VM.702-1
SS.131-8
RF SW PULSE
RP.802-7
CR.212-14
VM.701-6
SS.131-10
H:NT/L:PAL
CR.212-26
CR.212-24
FSC(X)
PB+5V
Q339
RP.806-1
VM.701-5
L:CNR CONNECTED
Q17
CR.212-25
H:CNR CONNECTED
CR.212-13
H:COLOR/L:B/W
Q19
L:COLOR/H:B/W
CR.212-21
H:LINE/L:S
SS.131-4
SS.131-5
SS.131-6
SS.131-9
H:VIDEO MUTE
H:EE/L:PB
L:PB
QUASI VD
IC1 +9V REG
+12V
+9V
Q14-16 REC +9V SELECT
REC+9V
+5V
Q11-13 PB +5V SELECT
PB+5V
SS.131-7
L:REC STANDBY
S-C IN(X)
Q112
Q111 S-VHS SW
IC101(1/3)
EQ
LIM
DEMOD
S:S-VHS
N:NOR-VHS
LPF
HPF
ENV DET
ENV
DOP DET
DL
DOP
RV106 N-VHS DEMOD Y LEVEL
Q122 DEMOD Y AMP
S-VHS
N-VHS
Q124 BUFF
RV105 S-VHS DEMOD Y LEVEL
Q120 Q125 Q126
IC102
Q121,128
Y AMP
Q103,110 MAIN DE-EMPHA
H:S-VHS
L:S-VHS
H:EDIT ON
L:PB
PEAKING
Q104,106,108,109
IC302
TP301 (AGC Y) ⑥
FL301
Q304-306 Y AMP
TP302 (AXEL IN Y) ⑦
Q310 CLAMP
Q311
Q312 DC SHIFT
IC303 A/D CONV
DO PULSE
IC304
Y/C SEP
D/A CONV
RV310 Y IN (D/A) LEVEL
RV311 C IN (D/A) LEVEL
Q333,334 FSC BUFF
L:COLOR/H:B/W
MODE CONT SW
Q20-22, Q313,314
Q320
FL302 LPF
Q335 Q336 Y AMP
Q337
IC403
IC405
IC306

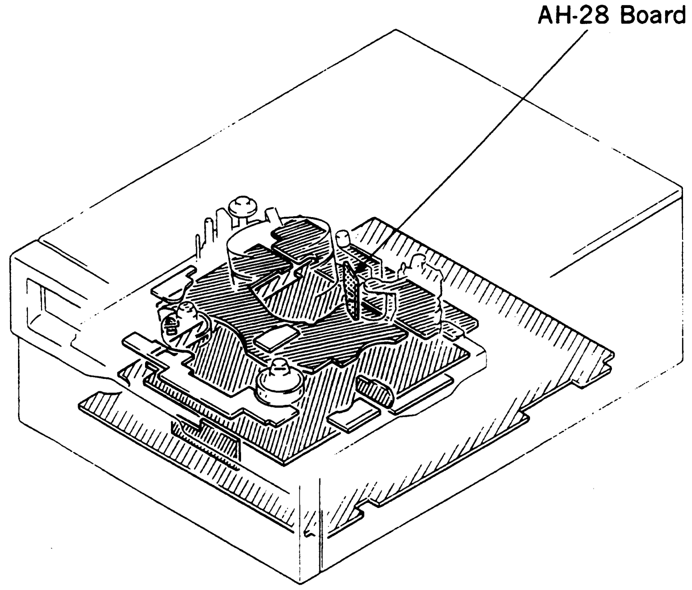

Q103,110
MAIN DE-EMPHA
Y AMP
PEAKING
Q104,106,108,109
AGC
IC101(2/3)
IC203
FL201
LPF
Q208
Y AMP
TP203 (SUB EMPH Y)
①
IC202
NON-LINEAR PROCESSOR
Q203
DL201
DL
Q204-207
SYNC EXPAND
S-VHS PB
S-VHS EE
RV202 SUB EMPHA LEVEL
Q201
L:PB
FL101
LPF
Q141,142
EQ
Q209
Y AMP
AMP
HPF
AMP
LIM
DOC
DETAIL LNC
AMP
CLP
AGC DET
SYNC SEP
LPF
RV101 Y AGC LEVEL
Q101,102,105,107
NOISE CANCEL MODE SW
H:EDIT ON
H:S-VHS
L:S-VHS
TP201 (REC/PB Y)
②
IC201
PB+5V
L:S-VHS
EE-VV DETAIL EDIT LNC
LOGIC
PB/EE
IC101(3/3)
HPF
NOISE LIM
LPF
NOISE CANCEL
PIC CONT
Y/C MIX
CLAMP
MUTE &AMP
QUASI VD
CLAMP
NON-LINEAR DE-EMPHA
NON-LINEAR EMPHA
MAIN EMPHA
LIM
CLIP
GAIN SW
RV108 DARK CLIP
RV104 WHITE CLIP
Q114,118
H:S-VHS
Q116
TP101 (EMPHA)
③
RV102 N-VHS FM DEVIATION
RV103 S-VHS FM DEVIATION
Q113
H:S-VHS
FM MOD
Q119
RV107 S-VHS SYNC CHIP CARRIER SET
RV109 N-VHS SYNC CHIP CARRIER SET
COMPOSITE SYNC
CN206
RP.806-3
CN203
SS.131-1
DO PULSE
SYNC CHIP SELECT
Q150,151
S/N 10001-10280
TRAP
Q211
Q210
R210 S-VHS Y REC CURRENT
Q212 Q213
Y RF BUFF
TP202 (REC Y RF)
⑤
REC Y RF(X)
CN207
RP.807-3
HPF
Q215
RV211 N-VHS Y REC CURRENT
Q214,216
N-VHS SW
L:S-VHS
REC CHROMA RF(X)
CN211
CR.212-7
TP210 (REC C RF)
④
Q261,262
C RF BUFF
RV260 C REC CURRENT
REC CHROMA RF(X)
CN207
RP.807-5
FL302
LPF
Q335 Q336
Y AMP
Q337
IC403
PB+5V
H:LINE/L:S
Q323
EQ
Q324
AMP
TP303 (REC Y)
⑧
IC404
H:LINE/L:S
CR Y(X)
CN211
CR.212-18
IC405
L:PB
LPF
DL301
DL
Q326-329
Y EQ & AMP
Q30,31
Y AMP
RV30 CNR IN (PB) Y LEVEL
Q32
TP304 (PB Y)
⑨
PB Y(X)
CN221
VM.701-1
VM.702-2
CN222
CNR Y(X)
Q420,421
CNR Y AMP
RV402 CNR Y LEVEL
Q430,431
BUFF
IC440,441 Q432,433
LIMITER
Q434,435
Y DELAY
IC442
H CORRELATOR
Q438-440
MIX AMP
IC407
PB+5V
H:VIDEO MUTE
Q480-483
Y/C MIX
RV480 MIX Y LEVEL
RV481 MIX C LEVEL
IC491
VIDEO OUTPUT AMP
LINE V OUT(X)
VIDEO MONITOR(X)
CN232
CN505
CN008
VIDEO OUT
PB C(X)
CN221
CR.212-10
Q40
PB C(X)
CN221
VM.701-3
L:PB
Q41
VM.702-4
CN222
CNR C(X)
Q402
C BUFF
RV401 CNR C LEVEL
IC402
H:VIDEO MUTE
PB+5V
TP492 (S-Y)
⑪
IC492
S-Y/S-C OUTPUT AMP
RV482 S-Y OUTPUT LEVEL
TP491 (S-C)
⑩
S-Y OUT(X)
S-C OUT(X)
CN005
S-VIDEO OUT
CP-183(2/2)
IC306
PB+5V
H:LINE/L:S
SEP C(X)
CN211
CR.212-20
CR.212-12
CN211
EE C(X)
IC406
H:COLOR/L:B/W
H:LINE/L:S
H:S-VHS
Q2
Q1
Q3
LPF
Q4
FSC TRAP
Q5
S/N10031 AND HIGHER
DUS-592

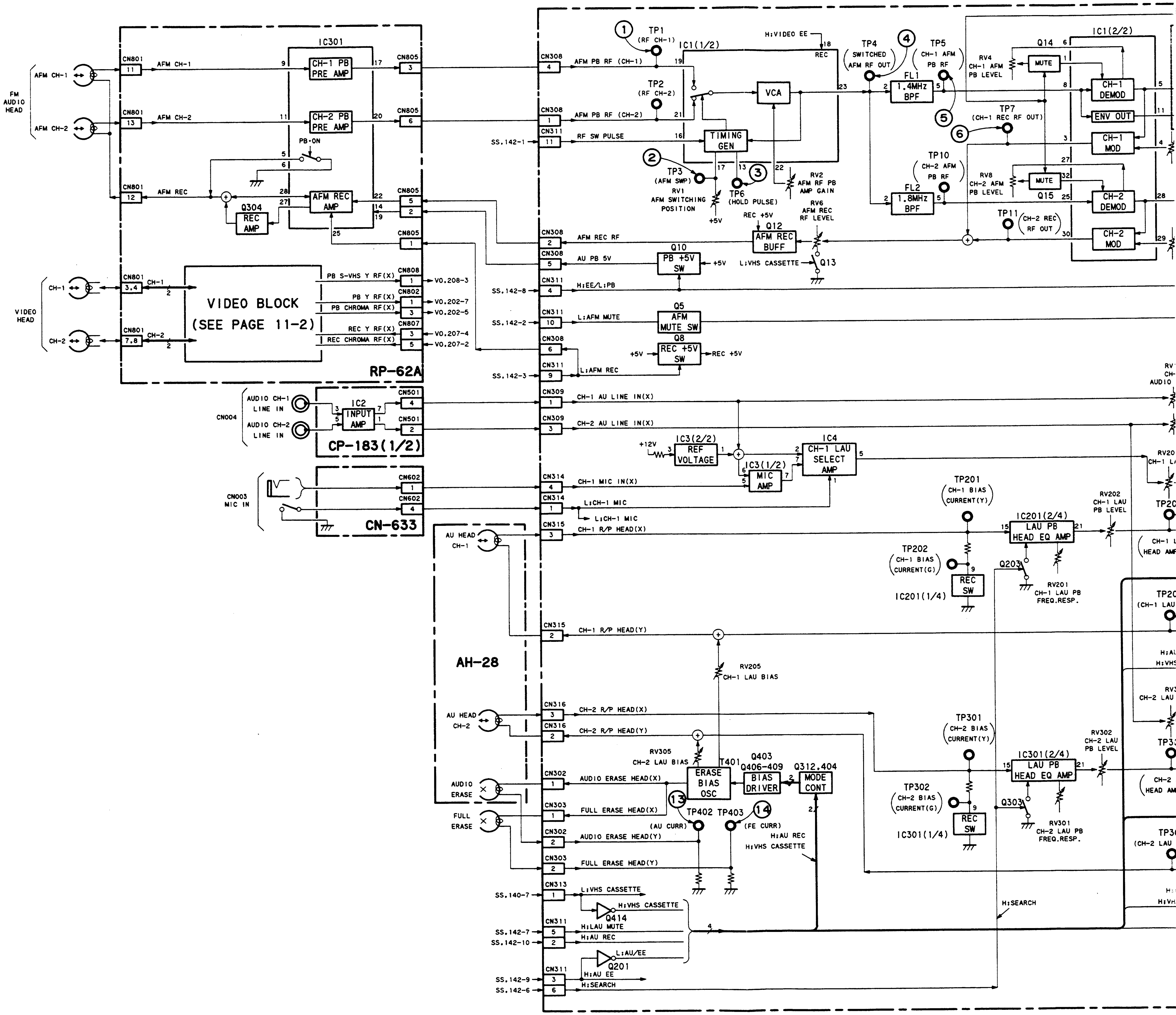
VO-37A

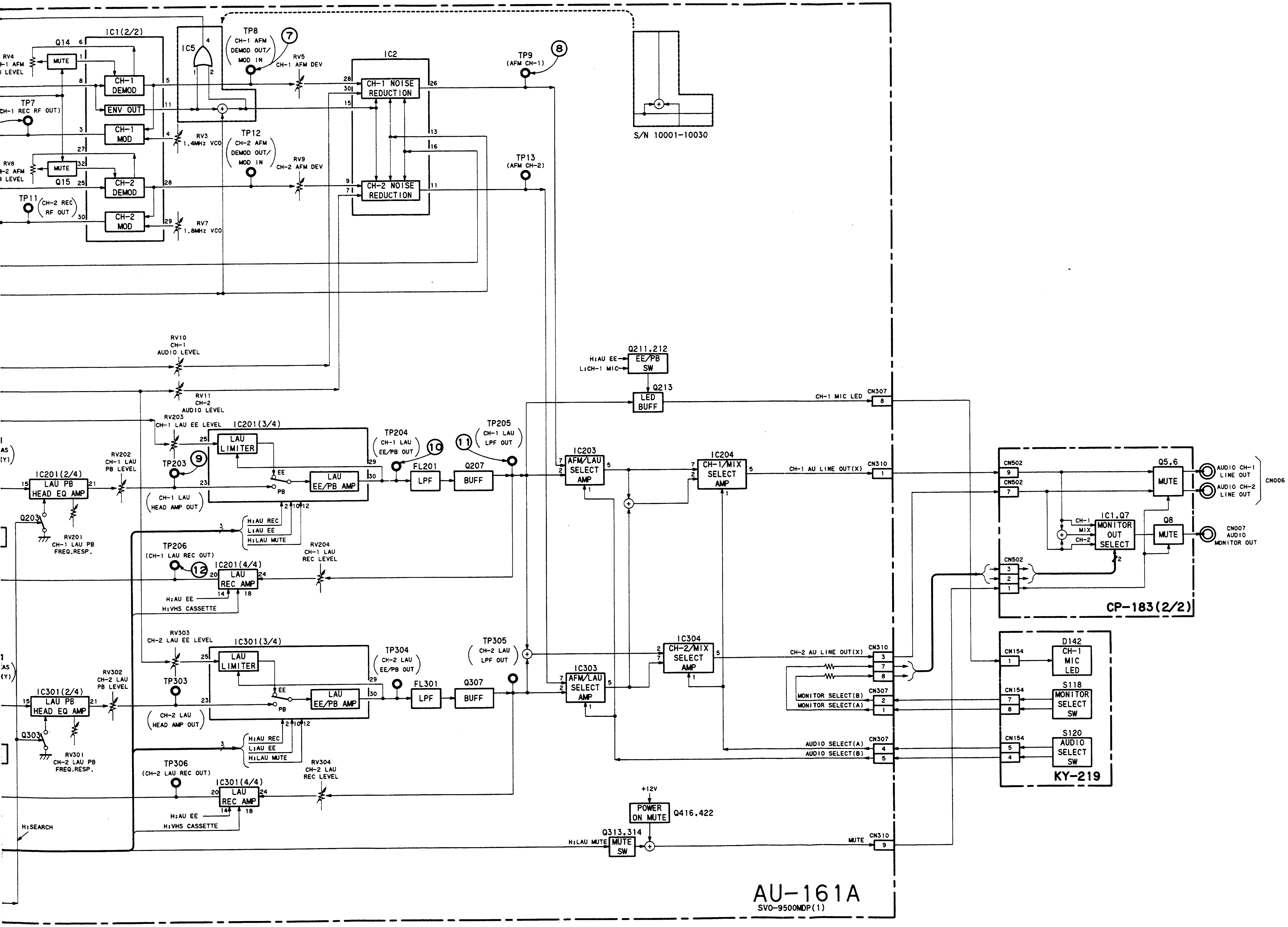
SVO-9500MDP(1)

AFM PROCESS/NORMAL AUDIO PROCESS

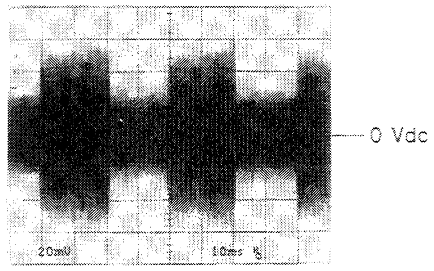

RP-62A Board
CP-183 Board
CN-633 Board
KY-219 Board
AU-161A Board



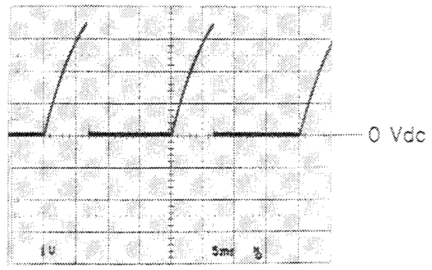

FM AUDIO HEAD
AFM CH-1
AFM CH-2
CN801
AFM REC
IC301
CH-1 PB PRE AMP
CH-2 PB PRE AMP
PB-ON
AFM REC AMP
Q304 REC AMP
CN805
VIDEO HEAD
CH-1
CH-2
VIDEO BLOCK (SEE PAGE 11-2)
PB S-VHS Y RF(X)
PB Y RF(X)
PB CHROMA RF(X)
REC Y RF(X)
REC CHROMA RF(X)
CN808
CN802
CN807
VO.208-3
VO.202-7
VO.202-5
VO.207-4
VO.207-2
RP-62A
CN004
AUDIO CH-1 LINE IN
AUDIO CH-2 LINE IN
IC2 INPUT AMP
CN501
CP-183(1/2)
CN003 MIC IN
CN602
CN-633
AU HEAD CH-1
AU HEAD CH-2
AH-28
AUDIO ERASE
FULL ERASE
CN308
CN311
CN309
CN314
CN315
CN316
CN302
CN303
CN313
AFM PB RF (CH-1)
AFM PB RF (CH-2)
RF SW PULSE
SS.142-1
AFM REC RF
AU PB 5V
H:EE/L:PB
SS.142-8
L:AFM MUTE
SS.142-2
L:AFM REC
SS.142-3
TP1 (RF CH-1)
TP2 (RF CH-2)
IC1(1/2)
H:VIDEO EE
REC
VCA
TIMING GEN
TP3 (AFM SWP)
RV1 AFM SWITCHING POSITION
TP6 (HOLD PULSE)
RV2 AFM RF PB AMP GAIN
RV6 AFM REC RF LEVEL
REC +5V
Q12 AFM REC BUFF
Q10 PB +5V SW
L:VHS CASSETTE
Q13
Q5 AFM MUTE SW
Q8 REC +5V SW
REC +5V
TP4 (SWITCHED AFM RF OUT)
TP5 (CH-1 AFM PB RF)
FL1 1.4MHz BPF
FL2 1.8MHz BPF
TP10 (CH-2 AFM PB RF)
TP7 (CH-1 REC RF OUT)
TP11 (CH-2 REC RF OUT)
RV4 CH-1 AFM PB LEVEL
RV8 CH-2 AFM PB LEVEL
Q14 MUTE
Q15 MUTE
IC1(2/2)
CH-1 DEMOD
ENV OUT
CH-1 MOD
CH-2 DEMOD
CH-2 MOD
CH-1 AU LINE IN(X)
CH-2 AU LINE IN(X)
+12V
IC3(2/2) REF VOLTAGE
IC3(1/2) MIC AMP
IC4 CH-1 LAU SELECT AMP
CH-1 MIC IN(X)
L:CH-1 MIC
CH-1 R/P HEAD(X)
CH-1 R/P HEAD(Y)
TP201 (CH-1 BIAS CURRENT(Y))
TP202 (CH-1 BIAS CURRENT(G))
IC201(2/4) LAU PB HEAD EQ AMP
IC201(1/4) REC SW
Q203
RV201 CH-1 LAU PB FREQ.RESP.
RV202 CH-1 LAU PB LEVEL
RV205 CH-1 LAU BIAS
CH-2 R/P HEAD(X)
CH-2 R/P HEAD(Y)
RV305 CH-2 LAU BIAS
T401 ERASE BIAS OSC
Q403 Q406-409 BIAS DRIVER
Q312,404 MODE CONT
AUDIO ERASE HEAD(X)
FULL ERASE HEAD(X)
AUDIO ERASE HEAD(Y)
FULL ERASE HEAD(Y)
TP402 (AU CURR)
TP403 (FE CURR)
H:AU REC
H:VHS CASSETTE
TP301 (CH-2 BIAS CURRENT(Y))
TP302 (CH-2 BIAS CURRENT(G))
IC301(2/4) LAU PB HEAD EQ AMP
IC301(1/4) REC SW
Q303
RV301 CH-2 LAU PB FREQ.RESP.
RV302 CH-2 LAU PB LEVEL
H:SEARCH
SS.140-7
L:VHS CASSETTE
H:VHS CASSETTE
Q414
SS.142-7
SS.142-10
H:LAU MUTE
H:AU REC
L:AU/EE
Q201
SS.142-9
SS.142-6
H:AU EE
H:SEARCH


IC1(2/2)
Q14
MUTE
RV4
CH-1 AFM
LEVEL
CH-1 DEMOD
ENV OUT
CH-1 MOD
TP7
CH-1 REC RF OUT
IC5
TP8
CH-1 AFM DEMOD OUT/ MOD IN
⑦
RV5
CH-1 AFM DEV
RV3
1.4MHz VCO
TP12
CH-2 AFM DEMOD OUT/ MOD IN
RV9
CH-2 AFM DEV
RV8
CH-2 AFM
LEVEL
MUTE
Q15
CH-2 DEMOD
CH-2 MOD
TP11
CH-2 REC RF OUT
RV7
1.8MHz VCO
IC2
CH-1 NOISE REDUCTION
CH-2 NOISE REDUCTION
TP9
(AFM CH-1)
⑧
TP13
(AFM CH-2)
S/N 10001-10030
RV10
CH-1 AUDIO LEVEL
RV11
CH-2 AUDIO LEVEL
Q211,212
H:AU EE
L:CH-1 MIC
EE/PB SW
Q213
LED BUFF
CH-1 MIC LED
CN307
RV203
CH-1 LAU EE LEVEL
IC201(3/4)
LAU LIMITER
TP204
CH-1 LAU EE/PB OUT
⑩
TP205
CH-1 LAU LPF OUT
⑪
TP203
⑨
RV202
CH-1 LAU PB LEVEL
IC201(2/4)
LAU PB HEAD EQ AMP
Q203
RV201
CH-1 LAU PB FREQ.RESP.
CH-1 LAU HEAD AMP OUT
EE
PB
LAU EE/PB AMP
FL201
LPF
Q207
BUFF
IC203
AFM/LAU SELECT AMP
IC204
CH-1/MIX SELECT AMP
CH-1 AU LINE OUT(X)
CN310
H:AU REC
L:AU EE
H:LAU MUTE
TP206
(CH-1 LAU REC OUT)
⑫
IC201(4/4)
LAU REC AMP
RV204
CH-1 LAU REC LEVEL
H:AU EE
H:VHS CASSETTE
RV303
CH-2 LAU EE LEVEL
IC301(3/4)
LAU LIMITER
TP304
CH-2 LAU EE/PB OUT
TP305
CH-2 LAU LPF OUT
RV302
CH-2 LAU PB LEVEL
TP303
IC301(2/4)
LAU PB HEAD EQ AMP
Q303
RV301
CH-2 LAU PB FREQ.RESP.
CH-2 LAU HEAD AMP OUT
LAU EE/PB AMP
FL301
LPF
Q307
BUFF
IC303
AFM/LAU SELECT AMP
IC304
CH-2/MIX SELECT AMP
CH-2 AU LINE OUT(X)
MONITOR SELECT(B)
MONITOR SELECT(A)
AUDIO SELECT(A)
AUDIO SELECT(B)
TP306
(CH-2 LAU REC OUT)
IC301(4/4)
LAU REC AMP
RV304
CH-2 LAU REC LEVEL
H:AU EE
H:VHS CASSETTE
H:SEARCH
+12V
POWER ON MUTE
Q416,422
Q313,314
H:LAU MUTE
MUTE SW
MUTE
AU-161A
SVO-9500MDP(1)
CN502
Q5,6
MUTE
AUDIO CH-1 LINE OUT
AUDIO CH-2 LINE OUT
CN006
IC1,Q7
CH-1
MIX
CH-2
MONITOR OUT SELECT
Q8
MUTE
CN007
AUDIO MONITOR OUT
CP-183(2/2)
D142
CN154
CH-1 MIC LED
S118
MONITOR SELECT SW
S120
AUDIO SELECT SW
KY-219

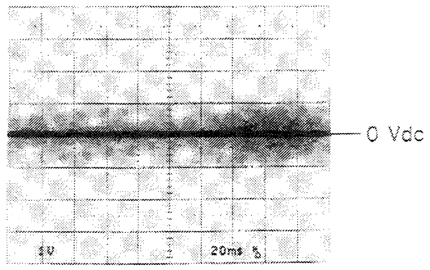
① TP1 (A-3) PB mode



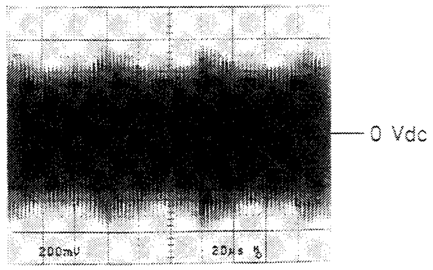
② TP3 (A-2) PB mode



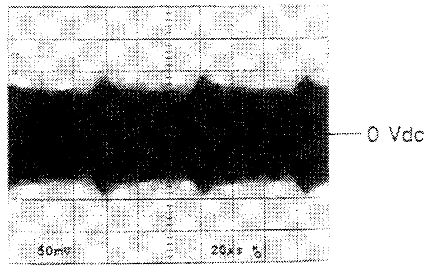
③ TP6 (A-1) PB mode



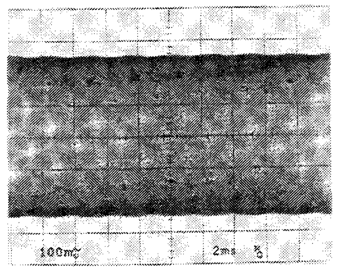
④ TP4 (B-2) PB mode



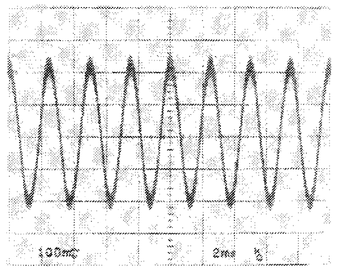
⑤ TP5 (A-1) PB mode



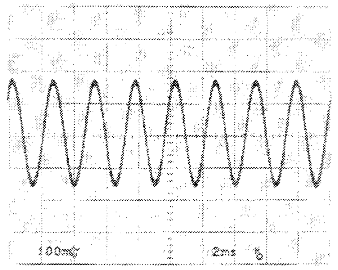
⑥ TP7 (B-1) STOP (E-E) mode



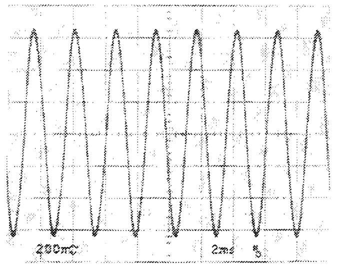
⑦ TP8 (B-1) PB mode



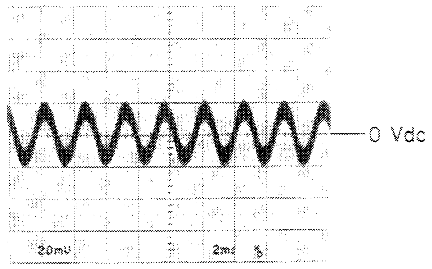
TP8 (B-1) REC mode



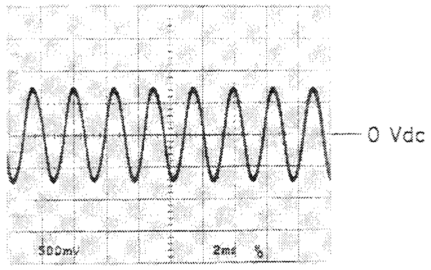
⑧ TP9 (C-1) STOP (E-E) mode



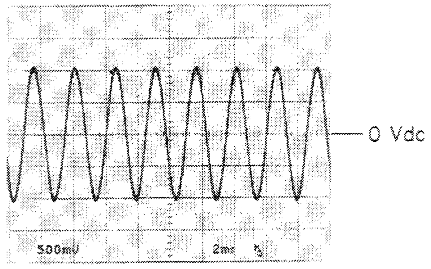
⑨ TP203 (J-3) PB mode



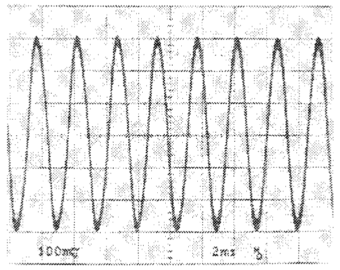
⑩ TP204 (I-2) PB mode



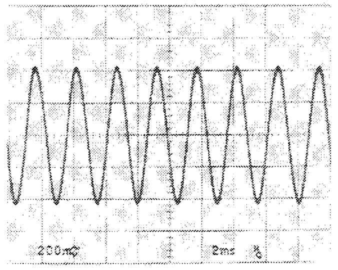
TP204 (I-2) STOP (E-E) mode



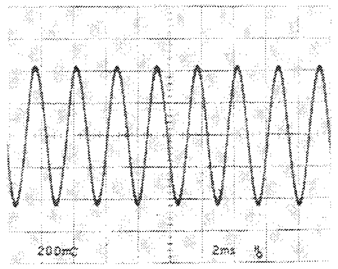
⑪ TP205 (J-1) PB mode



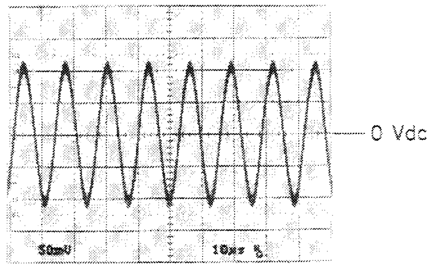
TP205 (J-1) STOP (E-E) mode



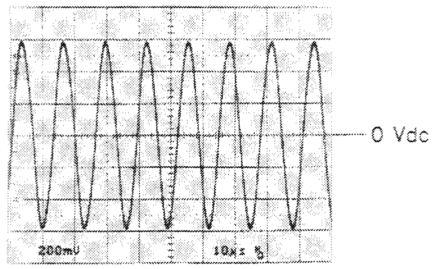
⑫ TP206 (J-2) STOP (E-E) mode



⑬ TP402 (L-4) REC mode

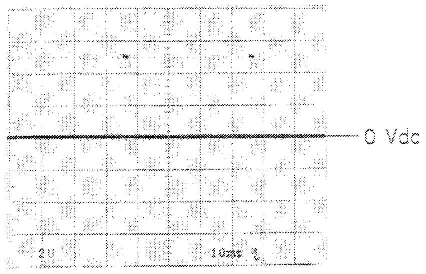


⑭ TP403 (L-4) REC mode

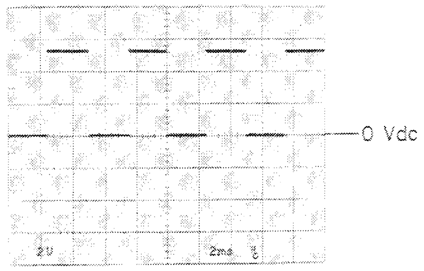


Measurement Condition
CH-1, AUDIO IN: 400 Hz, −10 dBu
STOP (E-E) mode: N-VHS
REC mode: N-VHS
PB mode: KRV-45PS

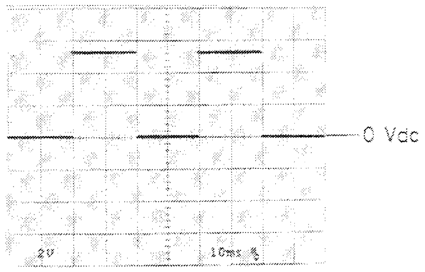
① TP104 (G-3) PB mode



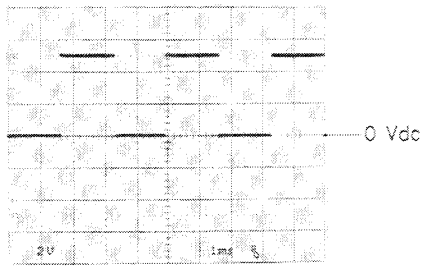
② TP110 (G-8) PB mode



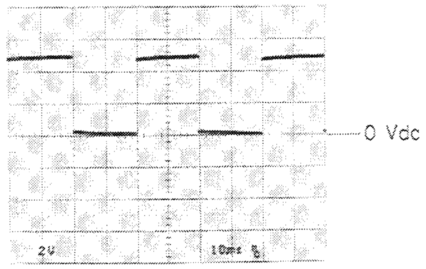
③ TP111 (L-7) PB mode



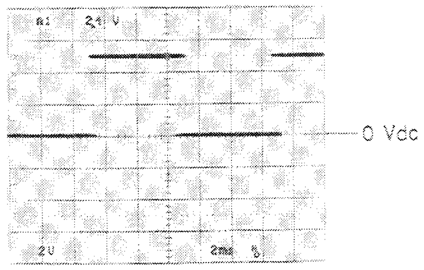
④ TP113 (G-3) PB mode



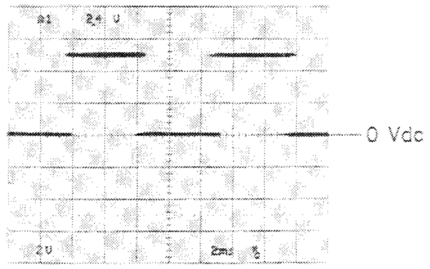
⑤ TP115 (K-4) PB mode



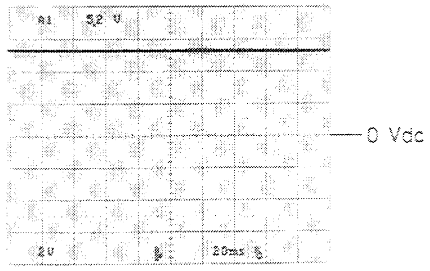
⑥ CN151 pin 4 (A-5) PB mode



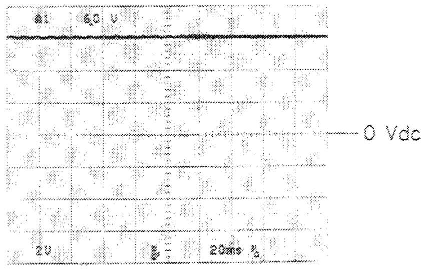
⑦ CN151 pin 5 (A-5) PB mode



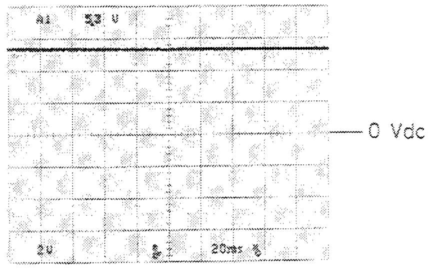
⑧ TP314 (C-2) PB mode



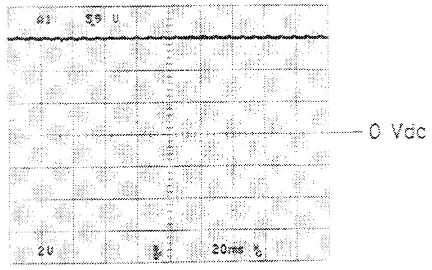
⑨ TP313 (D-3) PB mode



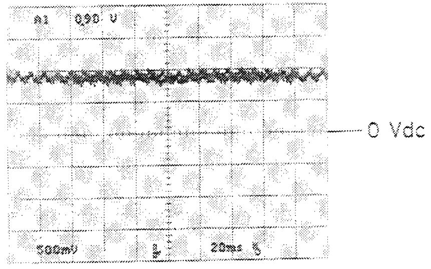
⑩ TP305 (B-3) PB mode



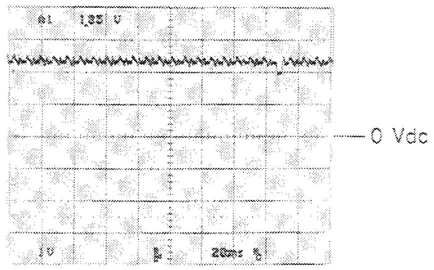
⑪ TP307 (C-2) PB mode



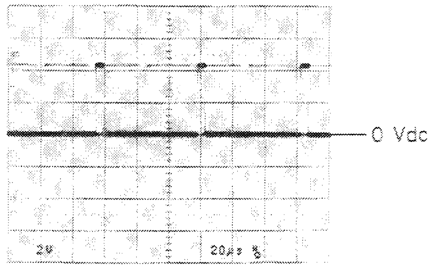
⑫ TP306 (B-2) PB mode



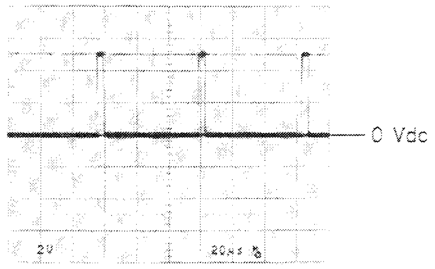
⑬ TP308 (B-3) PB mode



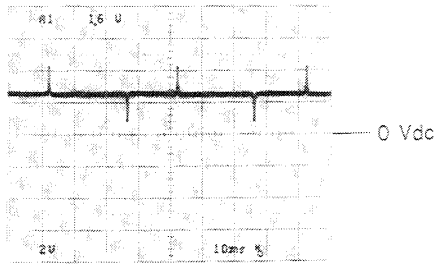
⑭ CN134 pin 13 (E-9) STOP (E-E) mode



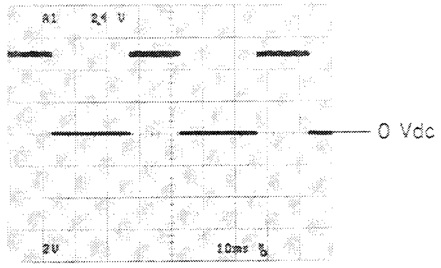
⑮ CN131 pin 1 (L-4) STOP (E-E) mode



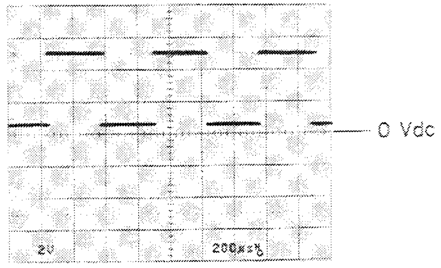
⑯ TP500 [DUS-534 (C-1)] PB mode



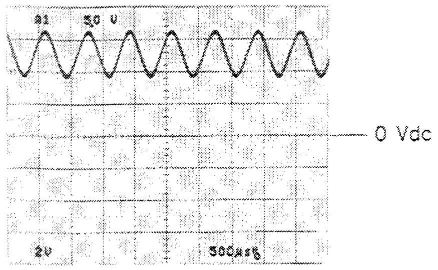
⑰ CN811 pin 3 (F-4) PB mode



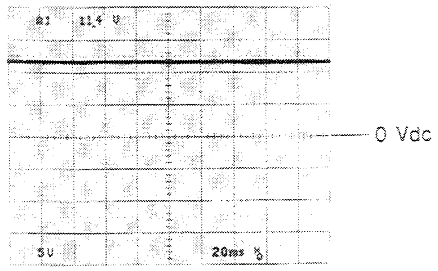
⑱ TP103 (K-9) PB mode



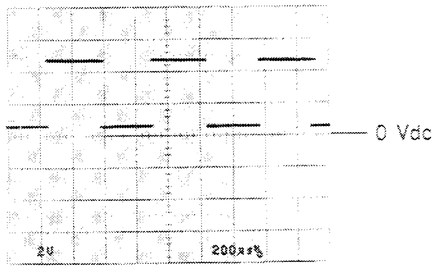
⑲ TP503 (K-9) PB mode



⑳ TP504 (K-9) PB mode



㉑ TP505 (K-9) PB mode



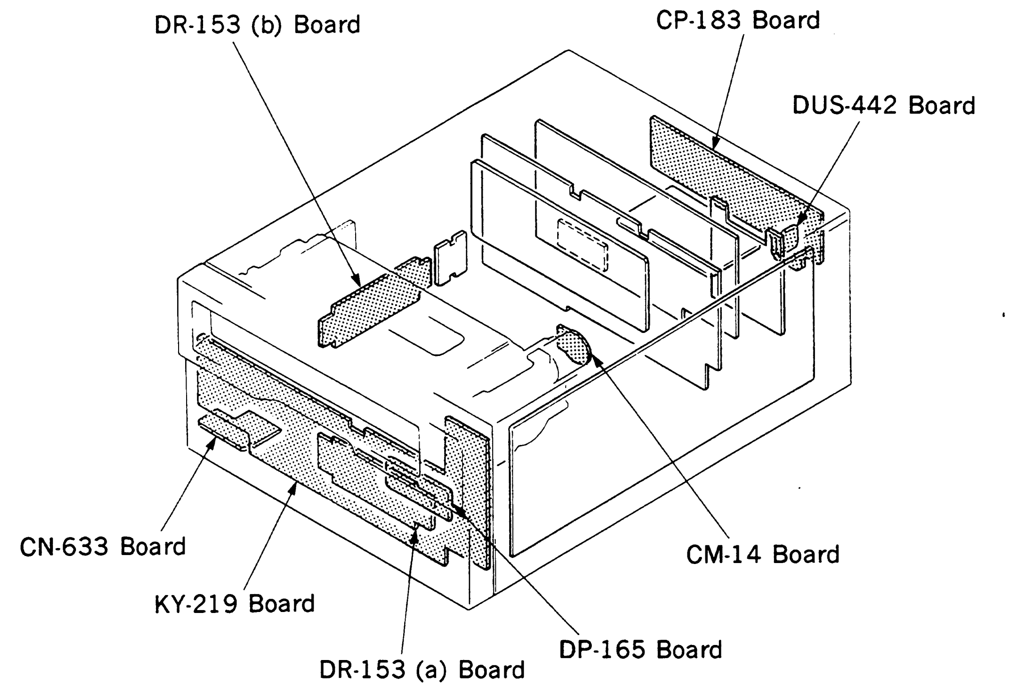
Measurement Condition

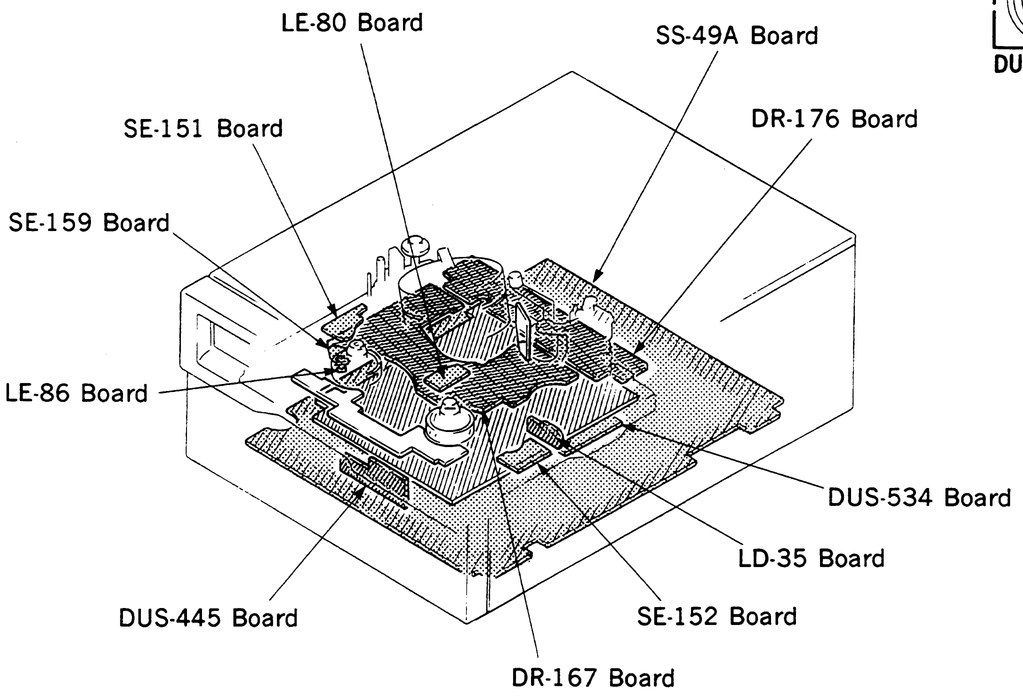
PB mode: KRV-45HPS

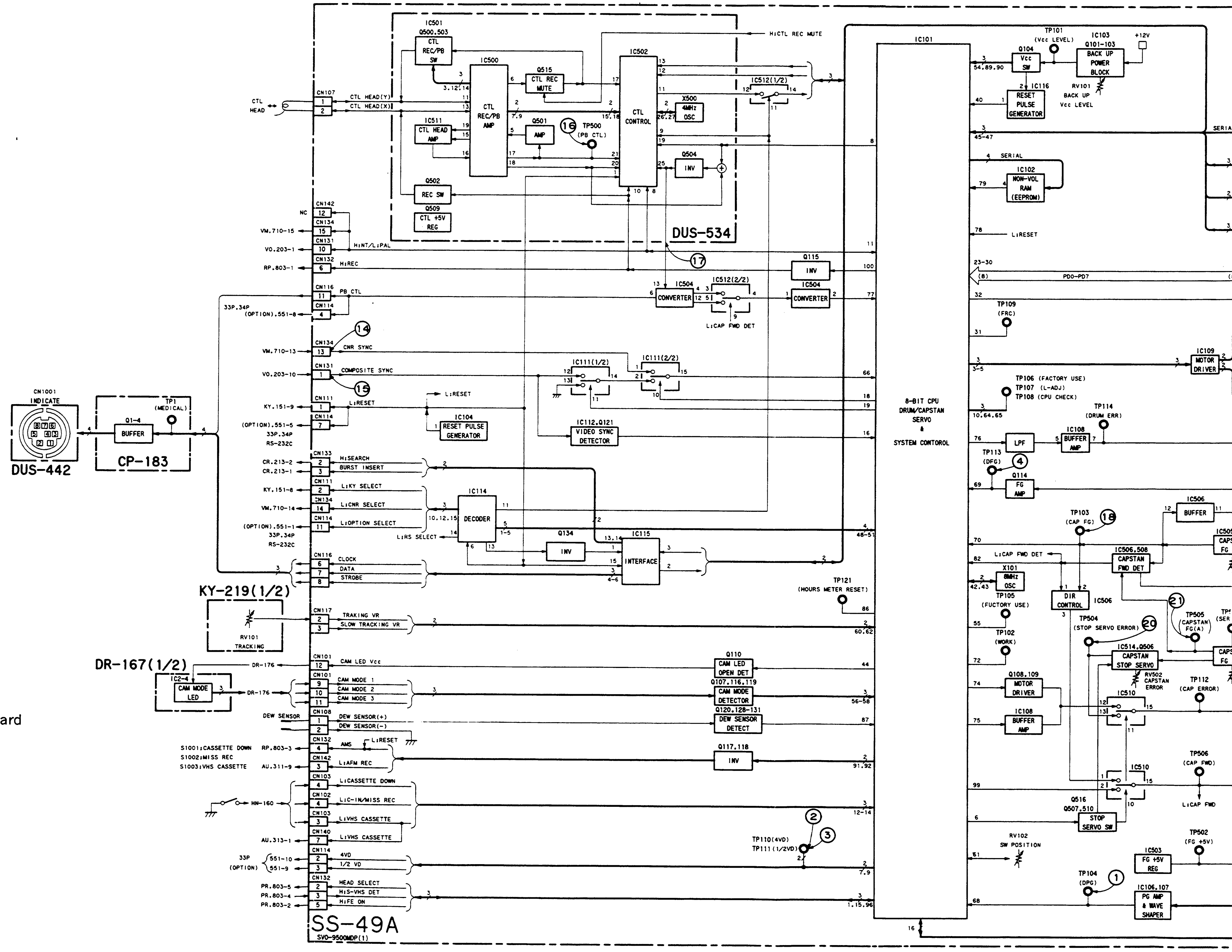
S-VIDEO IN: 75% color bars

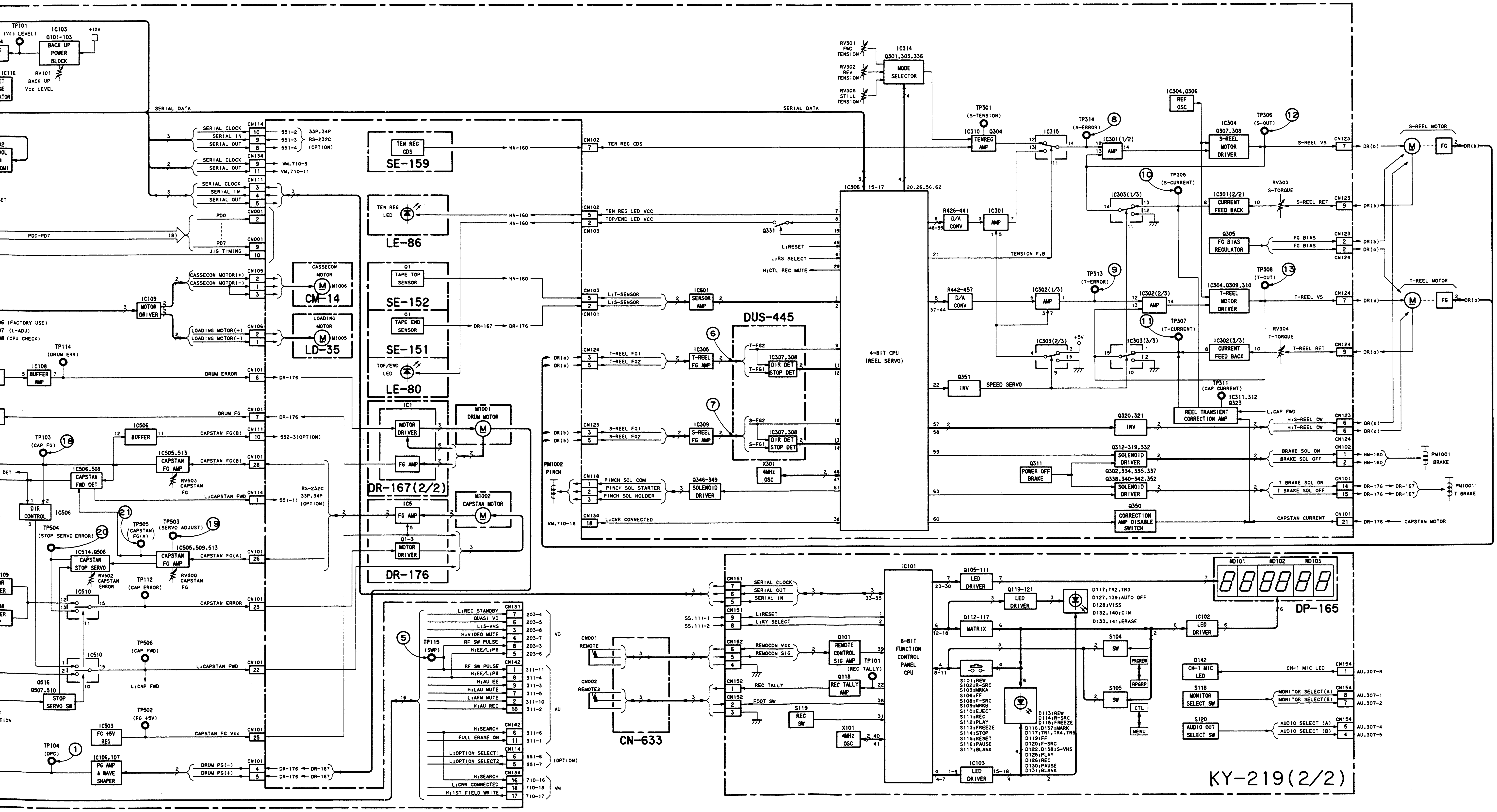
STOP (E-E) mode: S-VHS

SERVO & SYSTEM CONTROL


DR-153 (b) Board
CP-183 Board
DUS-442 Board
CN-633 Board
CM-14 Board
KY-219 Board
DP-165 Board
DR-153 (a) Board


LE-80 Board
SS-49A Board
SE-151 Board
DR-176 Board
SE-159 Board
LE-86 Board
DUS-534 Board
LD-35 Board
DUS-445 Board
SE-152 Board
DR-167 Board


DUS-534
IC501 Q500,503 CTL REC/PB SW
IC500 CTL REC/PB AMP
Q515 CTL REC MUTE
IC502 CTL CONTROL
X500 4MHz OSC
IC511 CTL HEAD AMP
Q501 AMP
TP500 (PB CTL)
Q504 INV
Q502 REC SW
Q509 CTL +5V REG
H:CTL REC MUTE
IC512(1/2)
IC512(2/2)
CTL HEAD
CN107 CTL HEAD(Y) CTL HEAD(X)
CN142 CN134 CN131 CN132 CN116 CN114
H:NT/L:PAL
H:REC
PB CTL
CNR SYNC
COMPOSITE SYNC
L:RESET
IC104 RESET PULSE GENERATOR
IC111(1/2) IC111(2/2)
IC112,Q121 VIDEO SYNC DETECTOR
IC504 CONVERTER
Q115 INV
IC504 CONVERTER
L:CAP FWD DET
H:SEARCH
BURST INSERT
L:KY SELECT
L:CNR SELECT
L:OPTION SELECT
L:RS SELECT
IC114 DECODER
Q134 INV
IC115 INTERFACE
CLOCK
DATA
STROBE
CN1001 INDICATE
DUS-442
Q1-4 BUFFER
TP1 (MEDICAL)
CP-183
33P,34P (OPTION),551-8
RS-232C
KY-219(1/2)
RV101 TRACKING
TRAKING VR
SLOW TRACKING VR
DR-167(1/2)
IC2-4 CAM MODE LED
CAM LED Vcc
CAM MODE 1
CAM MODE 2
CAM MODE 3
DEW SENSOR
DEW SENSOR(+)
DEW SENSOR(-)
Q110 CAM LED OPEN DET
Q107,116,119 CAM MODE DETECTOR
Q120,128-131 DEW SENSOR DETECT
Q117,118 INV
S1001:CASSETTE DOWN
S1002:MISS REC
S1003:VHS CASSETTE
AMS
L:AFM REC
L:CASSETTE DOWN
L:C-IN/MISS REC
L:VHS CASSETTE
4VD
1/2 VD
HEAD SELECT
H:S-VHS DET
H:FE ON
TP110(4VD) TP111(1/2VD)
TP121 (HOURS METER RESET)
SS-49A
SVO-9500MDP(1)
IC101
8-BIT CPU DRUM/CAPSTAN SERVO & SYSTEM CONTOROL
TP101 (Vcc LEVEL)
Q104 Vcc SW
IC103 Q101-103 BACK UP POWER BLOCK
+12V
IC116 RESET PULSE GENERATOR
RV101 BACK UP Vcc LEVEL
SERIAL
IC102 NON-VOL RAM (EEPROM)
L:RESET
PD0-PD7
TP109 (FRC)
IC109 MOTOR DRIVER
TP106 (FACTORY USE)
TP107 (L-ADJ)
TP108 (CPU CHECK)
TP114 (DRUM ERR)
LPF
IC108 BUFFER AMP
TP113 (DFG)
Q114 FG AMP
TP103 (CAP FG)
IC506 BUFFER
L:CAP FWD DET
IC506,508 CAPSTAN FWD DET
X101 8MHz OSC
TP105 (FACTORY USE)
DIR CONTROL
IC506
TP504 (STOP SERVO ERROR)
TP505 (CAPSTAN FG(A))
TP102 (WORK)
IC514,Q506 CAPSTAN STOP SERVO
RV502 CAPSTAN ERROR
TP112 (CAP ERROR)
Q108,109 MOTOR DRIVER
IC510
IC108 BUFFER AMP
TP506 (CAP FWD)
L:CAP FWD
Q516 Q507,510 STOP SERVO SW
RV102 SW POSITION
TP502 (FG +5V)
IC503 FG +5V REG
TP104 (DPG)
IC106,107 PG AMP & WAVE SHAPER


TP101 (Vcc LEVEL)
IC103 Q101-103 BACK UP POWER BLOCK
+12V
RV101 BACK UP Vcc LEVEL
SERIAL DATA
SE-159
TEN REG CDS
LE-86
TEN REG LED
SE-152
TAPE TOP SENSOR
SE-151
TAPE END SENSOR
LE-80
TOP/END LED
CASSECOM MOTOR M1006
CM-14
LOADING MOTOR M1005
LD-35
IC109 MOTOR DRIVER
TP114 (DRUM ERR)
IC108 BUFFER AMP
IC1 MOTOR DRIVER
FG AMP
M1001 DRUM MOTOR
DR-167(2/2)
IC5 FG AMP
M1002 CAPSTAN MOTOR
Q1-3 MOTOR DRIVER
DR-176
IC506 BUFFER
IC505,513 CAPSTAN FG AMP
RV503 CAPSTAN FG
IC506,508 CAPSTAN FWD DET
DIR CONTROL
TP103 (CAP FG) ⑱
TP505 (CAPSTAN FG(A)) ㉑
TP503 (SERVO ADJUST) ⑲
TP504 (STOP SERVO ERROR) ⑳
IC514,Q506 CAPSTAN STOP SERVO
IC505,509,513 CAPSTAN FG AMP
RV502 CAPSTAN ERROR
RV500 CAPSTAN FG
TP112 (CAP ERROR)
IC510
TP506 (CAP FWD)
L:CAP FWD
Q516 Q507,510 STOP SERVO SW
TP502 (FG +5V)
IC503 FG +5V REG
TP104 (DPG) ①
IC106,107 PG AMP & WAVE SHAPER
DRUM PG(-)
DRUM PG(+)
CN114 CN134 CN111 CN001 CN105 CN106 CN101
RS-232C 33P,34P (OPTION)
TP115 (SWP) ⑤
CN131 CN142 CN114 CN134
L:REC STANDBY
QUASI VD
L:S-VHS
H:VIDEO MUTE
RF SW PULSE
H:EE/L:PB
H:AU EE
H:LAU MUTE
L:AFM MUTE
H:AU REC
H:SEARCH
FULL ERASE ON
L:OPTION SELECT1
L:OPTION SELECT2
L:CNR CONNECTED
H:1ST FIELD WRITE
VD
AU
VM
DUS-445
IC305 T-REEL FG AMP ⑥
IC309 S-REEL FG AMP ⑦
IC307,308 DIR DET STOP DET
X301 4MHz OSC
IC601 SENSOR AMP
PM1002 PINCH
Q346-349 SOLENOID DRIVER
PINCH SOL COM
PINCH SOL STARTER
PINCH SOL HOLDER
L:CNR CONNECTED
IC306 4-BIT CPU (REEL SERVO)
RV301 FWD TENSION
RV302 REV TENSION
RV305 STILL TENSION
IC314 Q301,303,336 MODE SELECTOR
TP301 (S-TENSION)
IC310 Q304 TENREG AMP
IC315
TP314 (S-ERROR) ⑧
IC301(1/2) AMP
IC304,Q306 REF OSC
IC304 Q307,308 S-REEL MOTOR DRIVER
TP306 (S-OUT) ⑫
TP305 (S-CURRENT) ⑩
IC303(1/3)
IC301(2/2) CURRENT FEED BACK
RV303 S-TORQUE
Q305 FG BIAS REGULATOR
R426-441 D/A CONV
IC301 AMP
TENSION F.B
Q331
L:RESET
L:RS SELECT
H:CTL REC MUTE
R442-457 D/A CONV
IC302(1/3) AMP
TP313 (T-ERROR) ⑨
IC302(2/3) AMP
TP308 (T-OUT) ⑬
IC304,Q309,310 T-REEL MOTOR DRIVER
TP307 (T-CURRENT) ⑪
IC303(2/3)
IC303(3/3)
IC302(3/3) CURRENT FEED BACK
RV304 T-TORQUE
Q351 INV
SPEED SERVO
TP311 (CAP CURRENT)
IC311,312 Q323
REEL TRANSIENT CORRECTION AMP
Q320,321 INV
Q312-319,332 SOLENOID DRIVER
Q311 POWER OFF BRAKE
Q302,334,335,337 Q338,340-342,352 SOLENOID DRIVER
Q350 CORRECTION AMP DISABLE SWITCH
S-REEL MOTOR
T-REEL MOTOR
FG
PM1001 BRAKE
PM1001 T BRAKE
CAPSTAN MOTOR
CN123 CN124 CN102
H:S-REEL CW
H:T-REEL CW
BRAKE SOL ON
BRAKE SOL OFF
T BRAKE SOL ON
T BRAKE SOL OFF
CAPSTAN CURRENT
IC101 8-BIT FUNCTION CONTROL PANEL CPU
CN151 CN152
SERIAL CLOCK
SERIAL OUT
SERIAL IN
L:RESET
L:KY SELECT
REMOCON Vcc
REMOCON SIG
REC TALLY
FOOT SW
CN001 REMOTE
CN002 REMOTE2
CN-633
Q101 REMOTE CONTROL SIG AMP
TP101 (REC TALLY)
Q118 REC TALLY AMP
S119 REC SW
X101 4MHz OSC
Q105-111 LED DRIVER
Q119-121 LED DRIVER
Q112-117 MATRIX
IC103 LED DRIVER
S101:REW S102:R-SRC S103:MARK S106:FF S108:F-SRC S109:MRKB S110:EJECT S111:REC S112:PLAY S113:FREEZE S114:STOP S115:RESET S116:PAUSE S117:BLANK
D117:TR2,TR3 D127,139:AUTO OFF D128:VISS D132,140:CIN D133,141:ERASE
D113:REW D114:R-SRC D115:FREEZE D116,D117:TR1,TR4,TR5 D119:FF D120:F-SRC D122,D138:S-VHS D125:PLAY D126:REC D130:PAUSE D131:BLANK
MD101 MD102 MD103
DP-165
IC102 LED DRIVER
S104 SW
S105 SW
PRGREW RPGRP CTL MENU
D142 CH-1 MIC LED
S118 MONITOR SELECT SW
S120 AUDIO OUT SELECT SW
CH-1 MIC LED
MONITOR SELECT(A)
MONITOR SELECT(B)
AUDIO SELECT (A)
AUDIO SELECT (B)
CN154
AU.307-8 AU.307-1 AU.307-2 AU.307-4 AU.307-5
KY-219(2/2)

SECTION 12
SEMICONDUCTOR PIN ASSIGNMENTS

ICs, transistors and diodes that functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

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MC14013BCP	12-19
MC14053BCP	12-19
MC14053BF	12-19
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MC14094BCP	12-18
MC14538BCP	12-18
MC14538BF	12-18
MC14576AF	12-18
MC14576BF	12-18
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The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

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2SC2785	12-28
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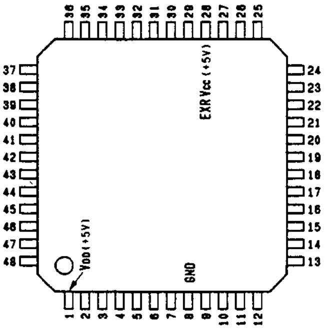
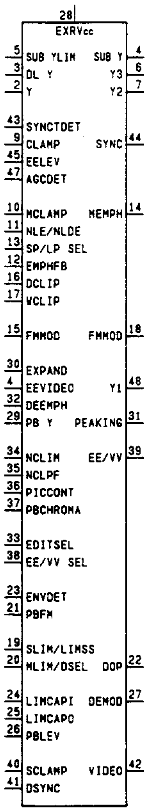
AN3237FB (MATSUSHITA) FLAT PACKAGE

VTR LUMINANCE SIGNAL PROCESSOR

- TOP VIEW -


EXRVcc (+5V)
VDD (+5V)
GND
1 2 3 4 5 6 7 8 9 10 11 12
13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36
37 38 39 40 41 42 43 44 45 46 47 48

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	–	Vcc (+5V)	17	I	WCLIP	33	I	EDITSEL
2	I	Y	18	O	FMMOD	34	I	NCLIM
3	I	DL Y	19	I	SLIM/LIMSS	35	I	NCLPF
4	O	SUB Y	20	I	MLIM/DSEL	36	I	PICCONT
5	I	SUB YLIM	21	I	PBFM	37	I	PBCHROMA
6	O	Y3	22	O	DOP	38	I	EE/VV SEL
7	O	Y2	23	I	ENVDET	39	O	EE/VV
8	–	GND	24	I	LIMCAPI	40	I	SCLAMP
9	I	CLAMP	25	O	LIMCAPO	41	I	DSYNC
10	I	MCLAMP	26	I	PBLEV	42	O	VIDEO
11	I	NLE/NLDE	27	O	DEMOD	43	I	SYNCTDET
12	I	EMPHFB	28	–	EXRVcc (+5V)	44	O	SYNC
13	I	SP/LP SEL	29	I	PB Y	45	I	EELEV
14	O	MEMPH	30	I	EXPAND	46	I	EEVIDEO
15	I	FMMOD	31	O	PEAKING	47	I	AGCDET
16	I	DCLIP	32	I	DEEMPH	48	O	Y1


28 EXRVcc
5 SUB YLIM
3 DL Y
2 Y
SUB Y 4
Y3 6
Y2 7
43 SYNCTDET
9 CLAMP
45 EELEV
47 AGCDET
SYNC 44
10 MCLAMP
11 NLE/NLDE
13 SP/LP SEL
12 EMPHFB
16 DCLIP
17 WCLIP
MEMPH 14
15 FMMOD
FMMOD 18
30 EXPAND
4 EEVIDEO
32 DEEMPH
29 PB Y
Y1 48
PEAKING 31
34 NCLIM
35 NCLPF
36 PICCONT
37 PBCHROMA
EE/VV 39
33 EDITSEL
38 EE/VV SEL
23 ENVDET
21 PBFM
19 SLIM/LIMSS
20 MLIM/DSEL
DOP 22
24 LIMCAPI
25 LIMCAPO
26 PBLEV
DEMOD 27
40 SCLAMP
41 DSYNC
VIDEO 42

INPUT

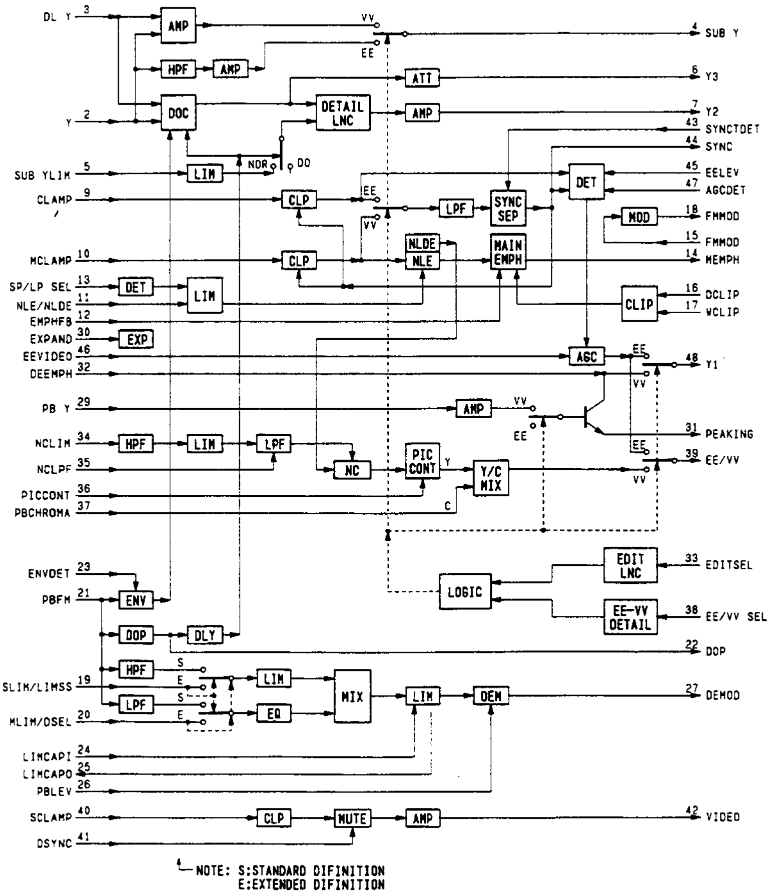
AGCDET : AUTO GAIN CONTROL DETECTION INPUT
CLAMP : CLAMP INPUT
DCLIP : DARK CLIP ADJUSTMENT INPUT
DEEMPH : DEEMPHANSIS INPUT
DL Y : DELAYED (1H) LUMINANCE SIGNAL INPUT
DSYNC : DUMMY SYNC SIGNAL INPUT
EDITSEL : EDIT MODE SELECT INPUT
EE/VV SEL : EE/VV SELECT INPUT
EELEV : EE VIDEO LEVEL ADJUSTMENT INPUT
EEVIDEO : EE VIDEO INPUT
EMPHFB : MAIN EMPHASIS FEEDBACK INPUT
ENVDET : ENVELOPE DETECTION INPUT
EXPAND : EXPANDER INPUT
FMMOD : FM MODULATOR INPUT
LIMCAPI : CAPACITOR CONNECTION FOR MAIN LIMITER
MCLAMP : MAIN CLAMP INPUT
MLIM/DSEL : DOUBLE (MAIN) LIMITER INPUT, WHEN EXTENDED DIFINITION MODE (S-VHS, Hi8 etc.) & DIFINITION SELECT INPUT
NCLIM : LIMITER INPUT FOR NOISE CANCELER
NCLPF : LPF INPUT FOR NOISE CANCELER
NLE/NLDE : NON-LINEAR EMPHASIS/DEEMPHASIS INPUT
PBCHROMA : PLAYBACK CHROMINANCE SIGNAL INPUT
PBFM : PLAYBACK FM SIGNAL INPUT
PBLEV : PLAYBACK LEVEL ADJUSTMENT INPUT
PB Y' : PLAYBACK Y SIGNAL INPUT
PICCONT : PICTURE CONTROL INPUT
SCLAMP : SECAND CLAMP INPUT
SLIM/LIMSS : DOUBLE (SUB) LIMITER INPUT, WHEN EXTENDED DIFINITION MODE (S-VHS, Hi8 etc.) & DOUBLE LIMITER SWITCHOVER STOP INPUT
SP/LP SEL : STANDARD/LONG PLAY MODE SELECT INPUT (FM CARRIER INTERLEAVE PULSE INPUT)
SUB YLIM : LUMINANCE LIMITER INPUT
SYNCTDET : SYNC TIP DETECTION INPUT
WCLIP : WHITE CLIP ADJUSTMENT INPUT
Y : LUMINANCE MAIN SIGNAL INPUT

OUTPUT

DEMOD : FM DEMODULATOR OUTPUT
DOP : DROPOUT PULSE OUTPUT
EE/VV : EE/VV SWITCHOVER OUTPUT
FMMOD : FM MODULATOR OUTPUT
LIMCAPO : CAPACITOR CONNECTION FOR MAIN LIMITER
MEMPH : MAIN EMPHASIS OUTPUT
PEAKING : VIDEO PEAKING OUTPUT
SUB Y : LUMUNANCE SUB SIGNAL OUTPUT
SYNC : COMPOSITE SYNC OUTPUT
VIDEO : COMPOSITE VIDEO OUTPUT
Y1 : Y SIGNAL OUTPUT
Y2 : Y SIGNAL OUTPUT FOR CLAMP
Y3 : Y SIGNAL OUTPUT FOR DELAYED Y

OTHER

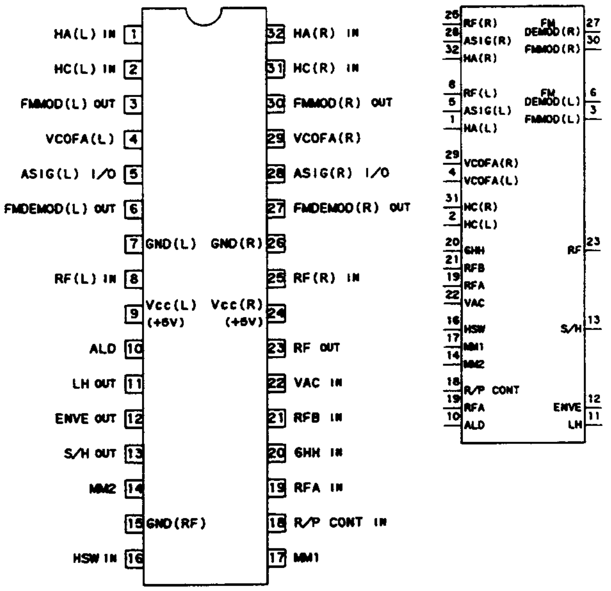
EXRVcc : EXCEPT REC Vcc (+5V)

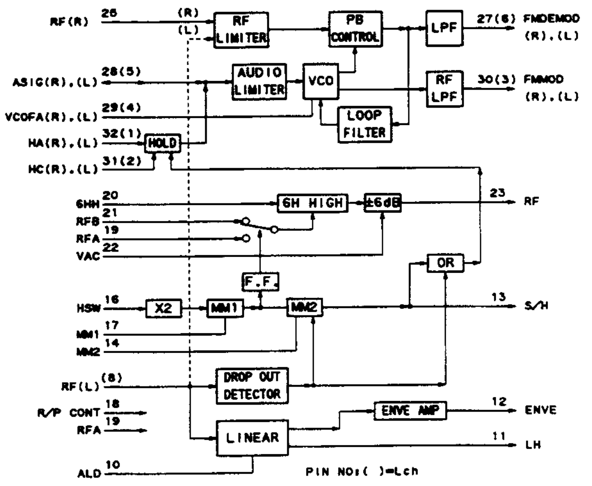

DL Y 3
Y 2
SUB YLIM 5
CLAMP 9
MCLAMP 10
SP/LP SEL 13
NLE/NLDE 11
EMPHFB 12
EXPAND 30
EEVIDEO 46
DEEMPH 32
PB Y 29
NCLIM 34
NCLPF 35
PICCONT 36
PBCHROMA 37
ENVDET 23
PBFM 21
SLIM/LIMSS 19
MLIM/DSEL 20
LIMCAPI 24
LIMCAPO 25
PBLEV 26
SCLAMP 40
DSYNC 41
AMP
HPF
DOC
DETAIL LNC
ATT
LIM
NOR
DO
CLP
LPF
SYNC SEP
DET
MOD
NLDE
NLE
MAIN EMPH
CLIP
EXP
AGC
PIC CONT
NC
Y/C MIX
Y
C
EDIT LNC
LOGIC
EE-VV DETAIL
ENV
DOP
DLY
EQ
MIX
DEM
MUTE
VV
EE
S
E
4 SUB Y
6 Y3
7 Y2
43 SYNCTDET
44 SYNC
45 EELEV
47 AGCDET
18 FMMOD
15 FMMOD
14 MEMPH
16 DCLIP
17 WCLIP
48 Y1
31 PEAKING
39 EE/VV
33 EDITSEL
38 EE/VV SEL
22 DOP
27 DEMOD
42 VIDEO

NOTE: S:STANDARD DIFINITION
E:EXTENDED DIFINITION

AN3932S (MATSUSHITA)

FM AUDIO AND FM MAIN FOR VCR
- TOP VIEW -


HA(L) IN 1
HC(L) IN 2
FMMOD(L) OUT 3
VCOFA(L) 4
ASIG(L) I/O 5
FMDEMOD(L) OUT 6
7 GND(L)
RF(L) IN 8
9 Vcc(L) (+5V)
ALD 10
LH OUT 11
ENVE OUT 12
S/H OUT 13
MM2 14
15 GND(RF)
HSW IN 16
32 HA(R) IN
31 HC(R) IN
30 FMMOD(R) OUT
29 VCOFA(R)
28 ASIG(R) I/O
27 FMDEMOD(R) OUT
GND(R) 26
25 RF(R) IN
Vcc(R) (+5V) 24
23 RF OUT
22 VAC IN
21 RFB IN
20 6HH IN
19 RFA IN
18 R/P CONT IN
17 MM1
RF(R)
ASIG(R)
HA(R)
FM DEMOD(R)
FMMOD(R)
RF(L)
ASIG(L)
HA(L)
FM DEMOD(L)
FMMOD(L)
VCOFA(R)
VCOFA(L)
HC(R)
HC(L)
6HH
RFB
RFA
VAC
RF
HSW
MM1
MM2
S/H
R/P CONT
RFA
ALD
ENVE
LH


RF(R) 25
(R)
(L)
RF LIMITER
PB CONTROL
LPF
27(6) FMDEMOD (R),(L)
ASIG(R),(L) 28(5)
AUDIO LIMITER
VCO
RF LPF
30(3) FMMOD (R),(L)
VCOFA(R),(L) 29(4)
LOOP FILTER
HA(R),(L) 32(1)
HOLD
HC(R),(L) 31(2)
6HH 20
RFB 21
RFA 19
VAC 22
6H HIGH
±6dB
23 RF
OR
F.F
HSW 16
X2
MM1
MM2
13 S/H
MM1 17
MM2 14
RF(L) (8)
DROP OUT DETECTOR
R/P CONT 18
RFA 19
ENVE AMP
12 ENVE
LINEAR
11 LH
ALD 10

PIN NO:( )=Lch

INPUT
6HH ;6H HIGH
HA(R),(L) ;HOLD AMP
HC(R),(L) ;HOLD CONTROL
HSW ;HOLD SWITCH
RF(R),(L) ;RF SIGNAL
RFA ;RF INPUT A
RFB ;RF INPUT B
R/P CONT ;REC/PB CONTROL
VAC ;VARIABLE AMP CONTROL

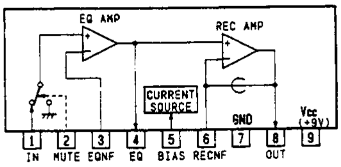
OUTPUT
ENVE ;ENVELOPE
FMDEMOD(R),(L) ;FM DEMODULATION
FMMOD(R),(L) ;FM MODULATION
LH ;LINEAR HIGH
RF ;RF OUTPUT
S/H ;S/H OUTPUT

INPUT/OUTPUT
ASIG;AUDIO SIGNAL

OTHERS
ACD ;AUDIO LINEAR DETECTION
MM1 ;MONO MULTI1
MM2 ;MONO MULTI2
VCOFA(R),(L);VCO FREQUENCY ADJUSTMENT

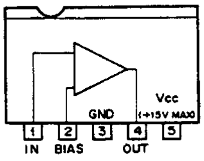
AN6392L (MATSUSHITA)

VIDEO SIGNAL RECODING AMPLIFIER
- PRINTED SIDE VIEW -


EQ AMP
REC AMP
CURRENT SOURCE
GND
Vcc (+9V)
1 IN
2 MUTE
3 EQNF
4 EQ
5 BIAS
6 RECNF
7
8 OUT
9

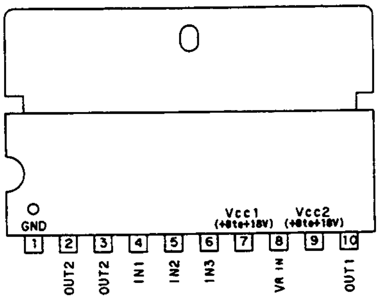
BA401 (ROHM)

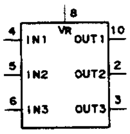
RF AMPLIFIER
- SIDE VIEW -

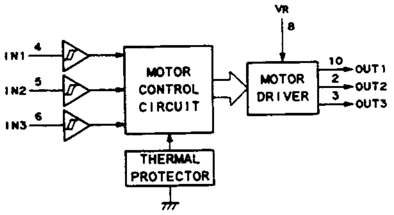

GND
Vcc (+15V MAX)
1 IN
2 BIAS
3
4 OUT
5

BA6238A (ROHM)

FORWARD AND REVERSE MOTOR DRIVER
- SIDE VIEW -


GND
Vcc1 (+8to+18V)
Vcc2 (+8to+18V)
1
2 OUT2
3 OUT2
4 IN1
5 IN2
6 IN3
7
8 VR IN
9 IN
10 OUT1


8
VR
4 IN1
5 IN2
6 IN3
OUT1 10
OUT2 2
OUT3 3

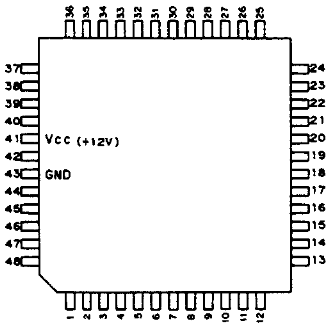

VR
8
IN1 4
IN2 5
IN3 6
MOTOR CONTROL CIRCUIT
MOTOR DRIVER
10 OUT1
2 OUT2
3 OUT3
THERMAL PROTECTOR

INPUT			OUTPUT			OPERATION
IN1	IN2	IN3	OUT1	OUT2	OUT3	
0	0	X	0	0	0	BRAKE
1	0	0	1	0	OPEN	MOTOR CURRENT OUT1→OUT2
1	0	1	0	1	OPEN	MOTOR CURRENT OUT2→OUT1
0	1	0	1	OPEN	0	MOTOR CURRENT OUT1→OUT3
0	1	1	0	OPEN	1	MOTOR CURRENT OUT3→OUT1
1	1	X	0	0	0	BRAKE

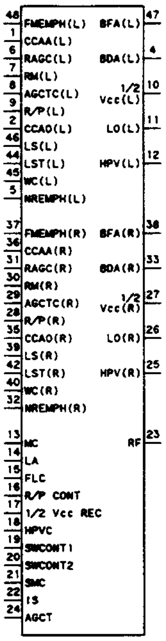
0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE

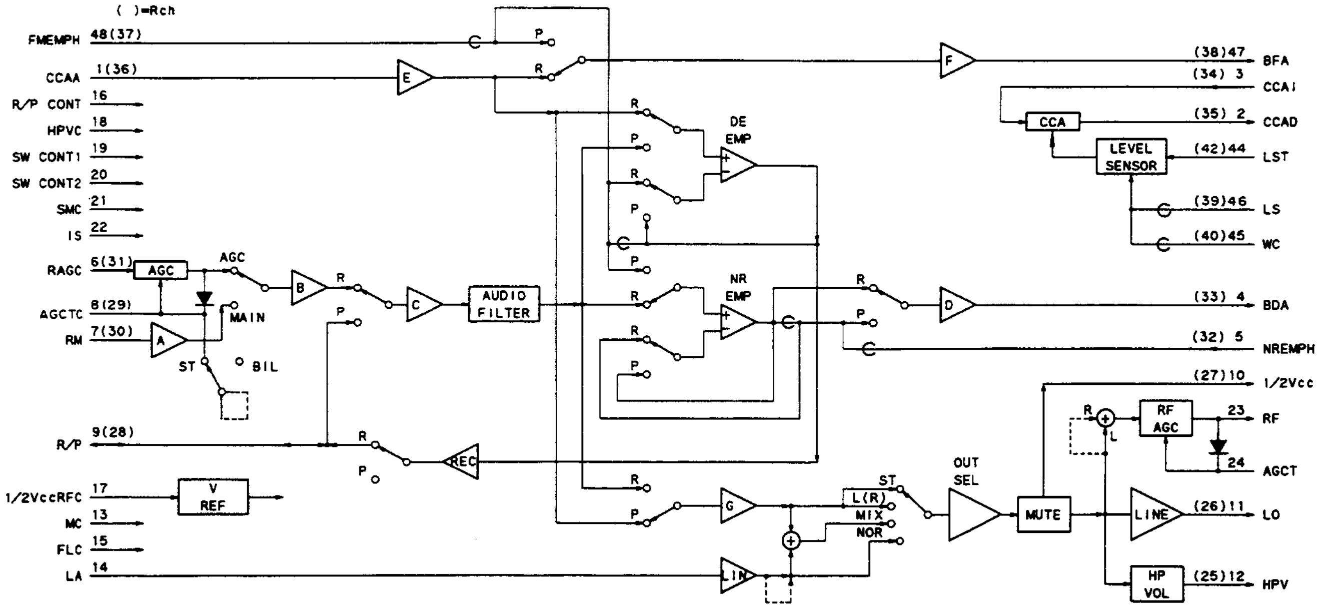
AN3972FC (MATSUSHITA) FLAT PACKAGE

PEAK NOISE REDUCTION FOR HIFI VCR FM AUDIO
– TOP VIEW –


Vcc (+12V)
GND
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48

PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL
1	I	CCAA(L)	17	I	1/2VccRFC	33	O	BDA(R)
2	O	CCAO(L)	18	I	HPVC	34	I	CCAI(R)
3	I	CCAI(L)	19	I	SWCONT1	35	O	CCAO(R)
4	O	BDA(L)	20	I	SWCONT2	36	I	CCAA(R)
5	I	NREMPH(L)	21	I	SMC	37	I	FMEMPH(R)
6	I	RAGC(L)	22	I	IS	38	O	BFA(R)
7	I	RM(L)	23	O	RF	39	I	LS(R)
8	I	AGCTC(L)	24	I	AGCT	40	I	WC(R)
9	I/O	R/P(L)	25	O	HPV(R)	41	–	Vcc(+12V)
10	O	1/2 Vcc(L)	26	O	LO(R)	42	I	LST(R)
11	O	LO(L)	27	O	1/2Vcc(R)	43	–	GND
12	O	HPV(L)	28	I/O	R/P(R)	44	I	LST
13	I	MC	29	I	AGCTC(R)	45	I	WC(L)
14	I	LA	30	I	RM(R)	46	I	LS(L)
15	I	FLC	31	I	RAGC(R)	47	O	BFA(L)
16	I	R/P CONT	32	I	NREMPH(R)	48	I	FMEMPH(L)


48 FMEMPH(L)
1 CCAA(L)
6 RAGC(L)
7 RM(L)
8 AGCTC(L)
9 R/P(L)
2 CCAO(L)
46 LS(L)
44 LST(L)
45 WC(L)
5 NREMPH(L)
BFA(L) 47
BDA(L) 4
1/2 Vcc(L) 10
LO(L) 11
HPV(L) 12
37 FMEMPH(R)
36 CCAA(R)
31 RAGC(R)
30 RM(R)
29 AGCTC(R)
28 R/P(R)
35 CCAO(R)
39 LS(R)
42 LST(R)
40 WC(R)
32 NREMPH(R)
BFA(R) 38
BDA(R) 33
1/2 Vcc(R) 27
LO(R) 26
HPV(R) 25
13 MC
14 LA
15 FLC
16 R/P CONT
17 1/2 Vcc REC
18 HPVC
19 SWCONT1
20 SWCONT2
21 SMC
22 IS
24 AGCT
RF 23


( )=Rch
FMEMPH 48(37)
CCAA 1(36)
R/P CONT 16
HPVC 18
SW CONT1 19
SW CONT2 20
SMC 21
IS 22
RAGC 6(31)
AGCTC 8(29)
RM 7(30)
R/P 9(28)
1/2VccRFC 17
MC 13
FLC 15
LA 14
AGC
MAIN
ST
BIL
A
B
C
E
F
D
G
LIN
AUDIO FILTER
DE EMP
NR EMP
REC
V REF
CCA
LEVEL SENSOR
RF AGC
OUT SEL
L(R)
MIX
NOR
MUTE
LINE
HP VOL
R
P
L
(38)47 BFA
(34) 3 CCAI
(35) 2 CCAD
(42)44 LST
(39)46 LS
(40)45 WC
(33) 4 BDA
(32) 5 NREMPH
(27)10 1/2Vcc
23 RF
24 AGCT
(26)11 LO
(25)12 HPV

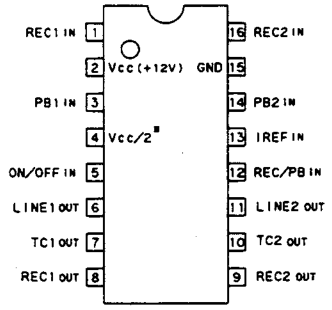
INPUT
1/2 Vcc RFC : 1/2 Vcc RIPPLE FILTERER CAPACITOR
AGCT : AGC TIMING FOR RF
AGCTC (L).(R) : AGC TIMING CAPACITOR
CCAA (L).(R) : CCA AMP
CCAI (L).(R) : CCA INPUT
FLC : FORCED LINEAR CONTROL
FMEMPH (L).(R) : FM EMPHASIS CAPACITOR
HPVC : HEADPHONE VOLUME CONTROL DC
IS : REC AGC/MANUAL CONTROL
LA : LINEAR AUDIO
LS (L).(R) : LEVEL SENSOR
LST (L).(R) : LEVEL SENSOR TIMING
MC : MUTING CONTROL
NREMPH (L).(R) : NR EMPHASIS CAPACITOR
RAGC (L).(R) : REC AGC
RM (L).(R) : REC MANUAL
R/P CONT : REC/PB CONTROL
SMC : AGC ST/BILL/OUTPUT MIX CONTROL
SW CONT1 : OUTPUT SWITCHING CONTROL1
SW CONT2 : OUTPUT SWITCHING CONTROL2

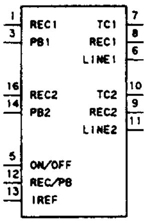
OUTPUT
1/2 Vcc (L).(R) : 1/2 Vcc OUTPUT
BDA (L).(R) : BUFFER D AMP
BFA (L).(R) : BUFFER F AMP
CCAO (L).(R) : CCA OUTPUT
HPV (L).(R) : HEADPHONE VOLUME
LO (L).(R) : LINE OUTPUT
RF : OUTPUT FOR RF

INPUT/OUTPUT
R/P (L).(R) : REC OUT/PB IN

CXA1102P (SONY)

DOLBY TYPE-B NOISE REDUCTION SYSTEM
- TOP VIEW -

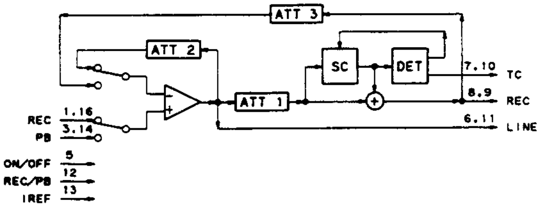

REC1 IN 1
2 Vcc(+12V) GND 15
PB1 IN 3
4 Vcc/2*
ON/OFF IN 5
LINE1 OUT 6
TC1 OUT 7
REC1 OUT 8
16 REC2 IN
14 PB2 IN
13 IREF IN
12 REC/PB IN
11 LINE2 OUT
10 TC2 OUT
9 REC2 OUT


REC1
PB1
TC1
REC1
LINE1
REC2
PB2
TC2
REC2
LINE2
ON/OFF
REC/PB
IREF

*Vcc/2:SINGLE VOLTAGE :+6V
DOUBLE VOLTAGE :GND

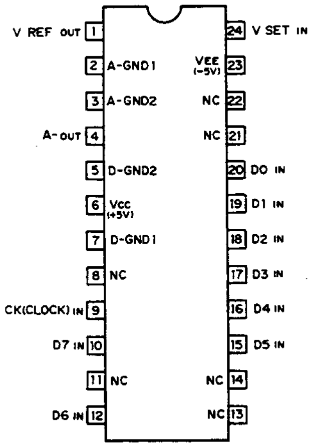
INPUT
IREF :REFERENCE CURRENT SOURCE
ON/OFF:DOLBY NR ON/OFF SELECT(H:OFF/L:ON)
PB :PB(DECODE) INPUT
REC :REC(ENCODE) INPUT
REC/PB:REC/PB SELECT(H:PB/L:REC)

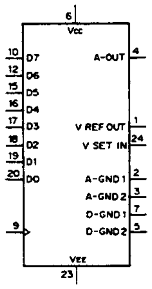
OUTPUT
LINE:LINE(DECODE) OUTPUT
REC :REC(ENCODE) OUTPUT
TC :LEVEL DETECTOR TIME CONSTANT

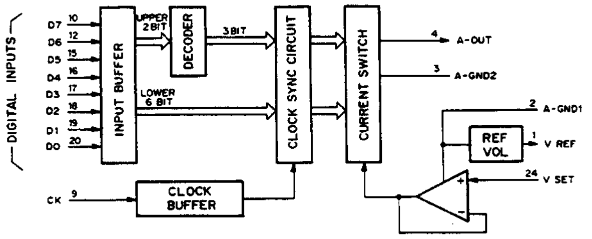

ATT 3
ATT 2
SC
DET
ATT 1
7.10 TC
8.9 REC
6.11 LINE
REC 1.16
PB 3.14
ON/OFF 5
REC/PB 12
IREF 13

CXA1106M (SONY) FLAT PACKAGE

8-BIT D/A CONVERTER (TTL INPUT)
- TOP VIEW -

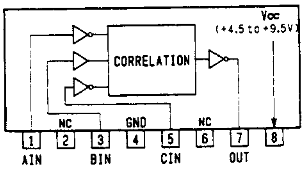

V REF OUT 1
2 A-GND1
3 A-GND2
A-OUT 4
5 D-GND2
6 Vcc (+5V)
7 D-GND1
8 NC
CK(CLOCK) IN 9
D7 IN 10
11 NC
D6 IN 12
24 V SET IN
VEE (-5V) 23
NC 22
NC 21
20 D0 IN
19 D1 IN
18 D2 IN
17 D3 IN
16 D4 IN
15 D5 IN
NC 14
NC 13

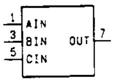

Vcc
D7
D6
D5
D4
D3
D2
D1
D0
A-OUT
V REF OUT
V SET IN
A-GND1
A-GND2
D-GND1
D-GND2
VEE


DIGITAL INPUTS
D7 D6 D5 D4 D3 D2 D1 D0
INPUT BUFFER
UPPER 2BIT
DECODER
3BIT
LOWER 6 BIT
CLOCK SYNC CIRCUIT
CURRENT SWITCH
A-OUT
A-GND2
A-GND1
REF VOL
V REF
V SET
CK
CLOCK BUFFER

CXA1413L (SONY) FLAT PACKAGE

VERTICAL CORRELATOR FOR DYNAMIC COM FILTER
- PRINTED SIDE VIEW -


Vcc (+4.5 to +9.5V)
CORRELATION
NC
GND
NC
AIN
BIN
CIN
OUT

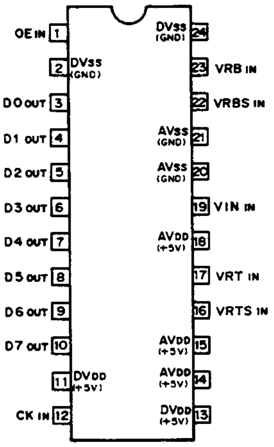

AIN
BIN
CIN
OUT

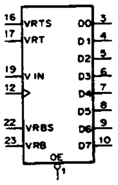
INPUT
AIN :0H INPUT (BIASED TO $\frac{V_{CC}}{2}$+0.7V
BIN :1H INPUT
CIN :2H INPUT INPUT RESISTANCE AT 20k-OHM)

OUTPUT
OUT :CORRELATED OUTPUT $\left(\frac{V_{CC}}{2}-0.7V\right)$

CXD1175AM (SONY) FLAT PACKAGE

C-MOS 8-BIT 20MSPS VIDEO A/D CONVERTER
- TOP VIEW -

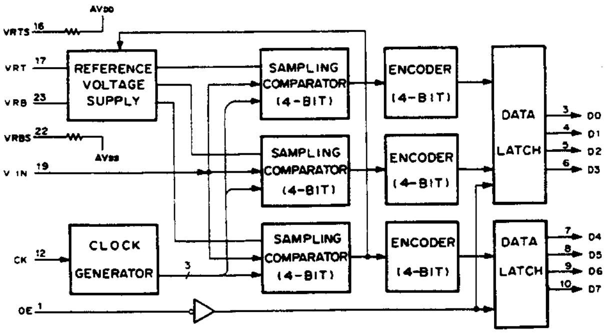

OE IN 1
2 DVss (GND)
D0 OUT 3
D1 OUT 4
D2 OUT 5
D3 OUT 6
D4 OUT 7
D5 OUT 8
D6 OUT 9
D7 OUT 10
11 DVDD (+5V)
CK IN 12
DVss (GND) 24
23 VRB IN
22 VRBS IN
AVss (GND) 21
AVss (GND) 20
19 VIN IN
AVDD (+5V) 18
17 VRT IN
16 VRTS IN
AVDD (+5V) 15
AVDD (+5V) 14
DVDD (+5V) 13


VRTS
VRT
VIN
VRBS
VRB
OE
D0 D1 D2 D3 D4 D5 D6 D7

AV$_{DD}$: ANALOG POWER SUPPLY
AV$_{SS}$: ANALOG GROUND
CK : CLOCK INPUT
D0 − 7 : DIGITAL DATA OUTPUTS (LSB to MSB)
DV$_{DD}$: DIGITAL POWER SUPPLY
DV$_{SS}$: DIGITAL GROUND
OE : OUTPUT ENABLE
(OE = HIGH : HIGH IMPEDANCE)
VIN : ANALOG VOLTAGE INPUT
VRB : BOTTOM REFERENCE VOLTAGE INPUT
VRBS : AS SHORT-CIRCUIT AT VRB.
GENERATES + 0.6V
VRT : TOP REFERENCE VOLTAGE INPUT
VRTS : AS SHORT-CIRCUIT AT VRT.
GENERATES + 2.6V

STEP	INPUT SIGNAL VOLTAGE	DATA OUTPUTS							
		D7	D6	D5	D4	D3	D2	D1	D0
0	0V (VRT)	1	1	1	1	1	1	1	1
1	0.01V	1	1	1	1	1	1	1	0
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
127	1.34V	1	0	0	0	0	0	0	0
128	1.35V	0	1	1	1	1	1	1	1
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
255	2.7V (VRB)	0	0	0	0	0	0	0	0

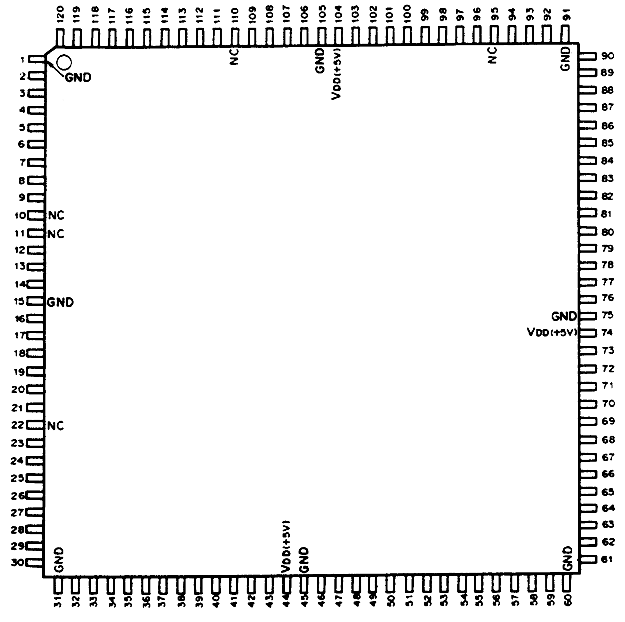
0 : LOW LEVEL
1 : HIGH LEVEL

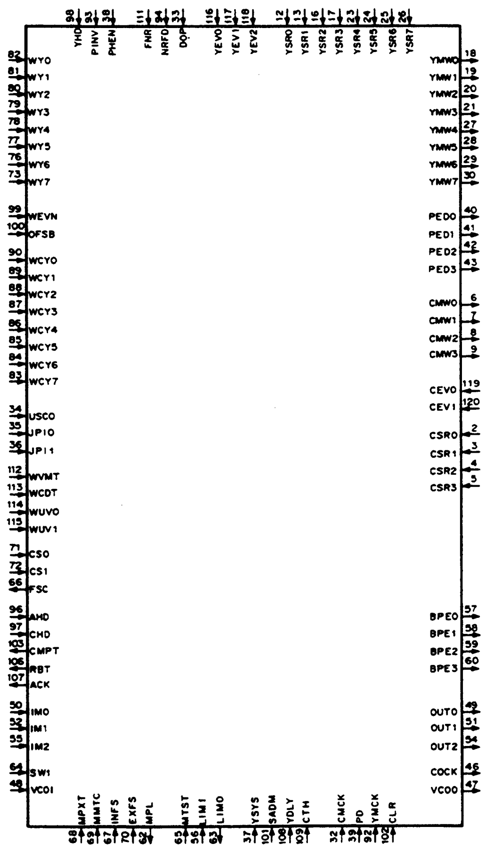

AVDD
VRTS 16
VRT 17
VRB 23
VRBS 22
AVss
V IN 19
CK 12
OE 1
REFERENCE VOLTAGE SUPPLY
SAMPLING COMPARATOR (4-BIT)
SAMPLING COMPARATOR (4-BIT)
SAMPLING COMPARATOR (4-BIT)
ENCODER (4-BIT)
ENCODER (4-BIT)
ENCODER (4-BIT)
CLOCK GENERATOR
DATA LATCH
DATA LATCH
D0 D1 D2 D3
D4 D5 D6 D7

CXD1226Q (SONY) FLAT PACKAGE

C-MOS DIGITAL CHROMA DECODER/Y, C FIELD NOISE REDUCER

– TOP VIEW –


GND
NC
VDD(+5V)
GND
NC
GND
NC
NC
GND
GND
VDD(+5V)
NC
GND
VDD(+5V)
GND
GND


YHD
PINV
PHEN
FNR
NRFD
DOP
YEV0
YEV1
YEV2
YSR0 – YSR7
WY0 – WY7
WEVN
OFSB
WCY0 – WCY7
USC0
JPI0
JPI1
WVMT
WCDT
WUV0
WUV1
CS0
CS1
FSC
AHD
CHD
CMPT
RBT
ACK
IM0
IM1
IM2
SW1
VCOI
YMW0 – YMW7
PED0 – PED3
CMW0 – CMW3
CEV0
CEV1
CSR0 – CSR3
BPE0 – BPE3
OUT0
OUT1
OUT2
COCK
VCOO
MPXT
MMTC
INFS
EXFS
MPL
MTST
LIMI
LIMO
YSYS
SADM
YDLY
CTH
CMCK
PD
YMCK
CLR

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	–	GND	31	–	GND	61	–	GND	91	–	GND
2	I	CSR0	32	I	CMCK	62	O	MPL	92	I	YMCK
3	I	CSR1	33	I	DOP	63	O	LIMO	93	I	PINV
4	I	CSR2	34	I	USC0	64	I	SW1	94	I	NRFD
5	I	CSR3	35	I	JPI0	65	I	MTST	95	–	NC
6	O	CMW0	36	I	JPI1	66	O	FSC	96	I	AHD
7	O	CMW1	37	I	YSYS	67	I	INFS	97	I	CHD
8	O	CMW2	38	I	PHEN	68	I	MPXT	98	I	YHD
9	O	CMW3	39	I	PD	69	I	MMTC	99	I	WEVN
10	–	NC	40	O	PED0	70	I	EXFS	100	I	OFSB
11	–	NC	41	O	PED1	71	I	CS0	101	I	SADM
12	I	YSR0	42	O	PED2	72	I	CS1	102	I	CLR
13	I	YSR1	43	O	PED3	73	I	WY7	103	O	CMPT
14	–	VDD (+5V)	44	–	VDD (+5V)	74	–	VDD (+5V)	104	–	VDD (+5V)
15	–	GND	45	–	GND	75	–	GND	105	–	GND
16	I	YSR2	46	O	COCK	76	I	WY6	106	O	RBT
17	I	YSR3	47	O	VCOO	77	I	WY5	107	O	ACK
18	O	YMW0	48	I	VCOI	78	I	WY4	108	I	YDLY
19	O	YMW1	49	O	OUT0	79	I	WY3	109	I	CTH
20	O	YMW2	50	I	IM0	80	I	WY2	110	–	NC
21	O	YMW3	51	O	OUT1	81	I	WY1	111	I	FNR
22	–	NC	52	I	IM1	82	I	WY0	112	I	WVMT
23	I	YSR4	53	–	AG	83	I	WCY7	113	I	WCDT
24	I	YSR5	54	O	OUT2	84	I	WCY6	114	I	WUV0
25	I	YSR6	55	I	IM2	85	I	WCY5	115	I	WUV1
26	I	YSR7	56	I	LIMI	86	I	WCY4	116	I	YEV0
27	O	YMW4	57	O	BPE0	87	I	WCY3	117	I	YEV1
28	O	YMW5	58	O	BPE1	88	I	WCY2	118	I	YEV2
29	O	YMW6	59	O	BPE2	89	I	WCY1	119	I	CEV0
30	O	YMW7	60	O	BPE3	90	I	WCY0	120	I	CEV1

INPUT

AG : ANALOG GND
AHD : H SYNC INPUT FOR APC
*3 CEV0, 1 : C NOISE REDUCER MODE SELECT INPUTS
CHD : H SYNC INPUT FOR BURST DETECT
CLR : DIRECT CLEAR INPUT
CMCK : CLOCK INPUT FOR CHROMA SYSTEM
CSR0 – CSR3 : CHROMA READ DATA INPUTS
*1 CS0, 1 : CHROMA SYSTEM SELECT INPUTS
CTH : CHROMA TEST TERMINAL
DOP : DROPOUT CONPENSATION PULSE INPUT
EXFS : EXTERNAL Fsc INPUT
FNR : NOISE REDUCER ON/OFF CNTROL INPUT
IM0 – IM2 : AUDIO RANGE AMP INPUTS
INFS : INTERNAL Fsc INPUT
JPI0, 1 : ID CODE MONITOR INPUTS (D2, D3)
LIMI : WINDOW COMPARATOR INPUT
MMTC, MPXT, MTST, PD : TEST PIN
NRFD : Y FIELD NOISE REDUCER DATA INPUT
OFSB : OFF SET BINARY MODE INPUT
PHEN : CHROMA APC SYSTEM CONTROL INPUT
PINV : PEDESTAL CLAMP ERROR INVERT INPUT
SADM : Y/C SIGNAL, H : COMPOSITE SIGNAL SELECT INPUT
SW1 : AUDIO RANGE SWITCH INPUT
USC0 : USER CODE FOR OPTION
VCOI : VCO INPUT
WCDT : WRITE FRAMING CODE TIMING INPUT
WCY0 – WCY7 : L CHROMA SIGNAL, H : COMPOSITE SIGNAL INPUTS
WEVN : WRITE EVEN/ODD FIELD MONITOR INPUT
WUV0, 1 : WRITE U/V TIMING INPUTS
MVMT : WRITE VIDEO MUTE
WY0 – WY7 : WRITE Y SIGNAL INPUTS
YDLY : Y DELAY ADJUST INPUT
*2 YEV0 – YEV2 : Y NOISE REDUCER MODE SELECT INPUTS
YHD : Y H DRIVE PULSE INPUT
YMCK : Y MEMORY CONTROL CLOCK INPUT
YSR0 – YSR7 : Y MEMORY DATA INPUTS
YSYS : Y DELAY ADJUST INPUT (H : 3.58MHz C SYSTEM, L : 4.43MHz C SYSTEM)

OUTPUT

ACK : CLOCK OUTPUT FOR APC (H : B/W MODE, L : COLOR MODE)
BPE0 – BPE3 : PHASE ERROR OUTPUTS FOR APC (OFFSET BINARY OUTPUTS)
CMPT : MONITOR TERMINAL FOR TEST
CMW0 – CMW3 : CHROMA WRITE DATA OUTPUTS
COCK : VCO OUT CLOCK OUTPUT
FSC : 1/4 CLOCK OUTPUT
LIMO : WINDOW COMPARATOR OUTPUT
MPL : PHASE COMPARATOR ERROR OUTPUT
OUT0 – OUT2 : AUDIO RANGE AMP OUTPUTS
PED0 – PED3 : PEDESTAL CLAMP ERROR OUTPUTS
RBT : MONITOR PIN FOR TEST
VCOO : VCO OUTPUT
YMW0 – YMW7 : Y MEMORY DATA OUTPUTS

*1 CHROMA SYSTEM MODE SELECTION

CS1	CS0	MODE
0	0	NTSC
0	1	PAL
1	0	CHROMA BASE BAND INPUT
1	1	PROHIBITION

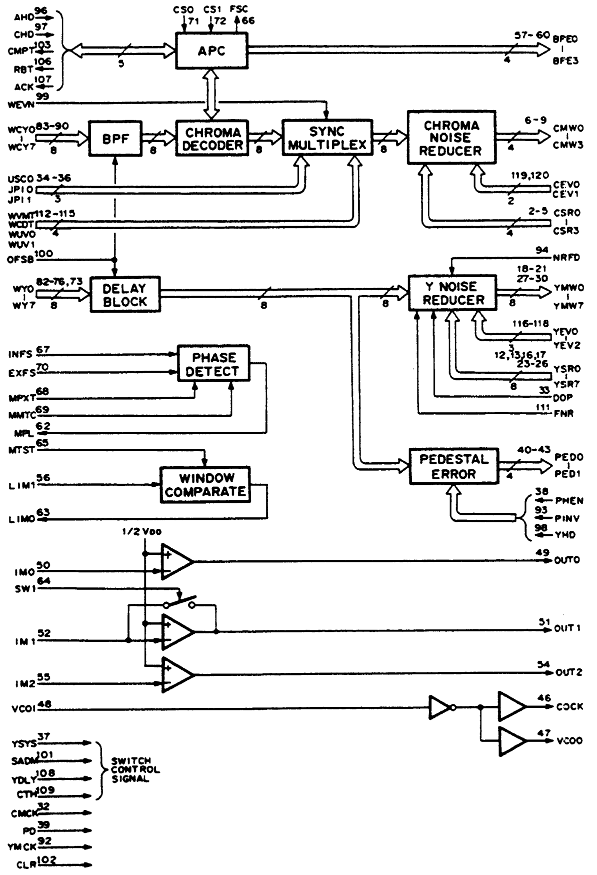
*3 CHROMA SIGNAL NOISE REDUCER SELECTION

CEV0	CEV1	OPERATION
0	0	NOISE REDUCER (SOFT)
0	1	NOISE REDUCER (MIDDLE)
1	0	NOISE REDUCER (STRONG)
1	1	NO OPERATION

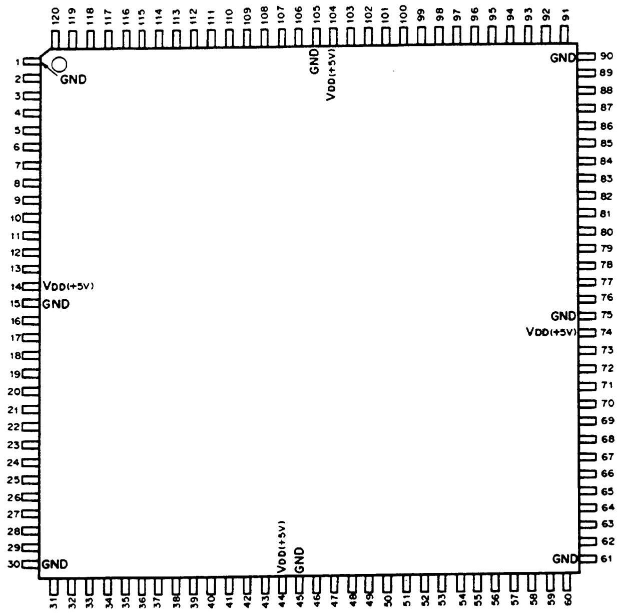
0 : LOW LEVEL
1 : HIGH LEVEL

*2 Y SIGNAL NOISE REDUCER SELECTION

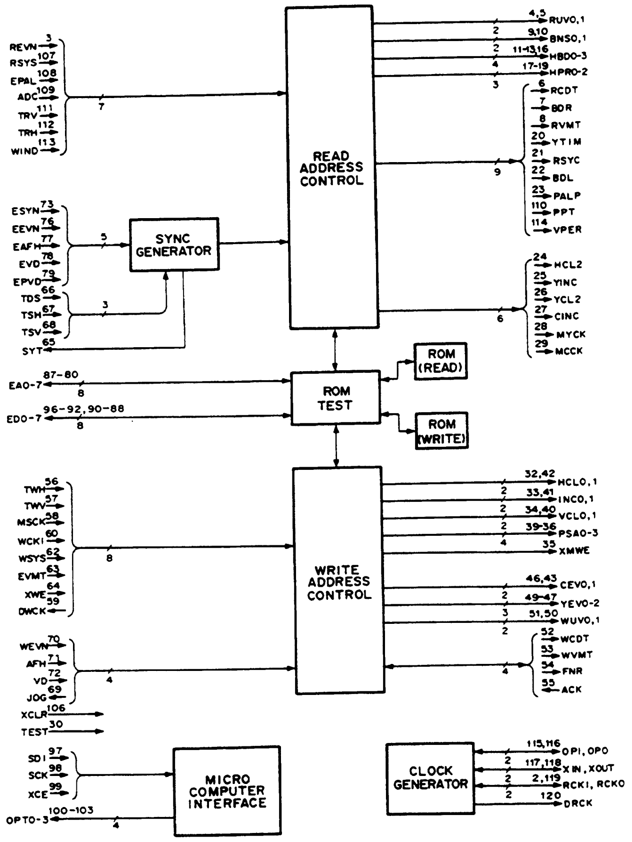
YEV0	YEV1	YEV2	OPERATION
0	0	0	NOISE REDUCER (SOFT)
0	0	1	NOISE REDUCER (MIDDLE)
0	1	0	NOISE REDUCER (STRONG)
0	1	1	AFTER IMAGE
1	0	0	VERTICAL FILTER
1	0	1	FADE IN/OUT
1	1	0	SELECT AFTER IMAGE
1	1	1	NO OPERATION

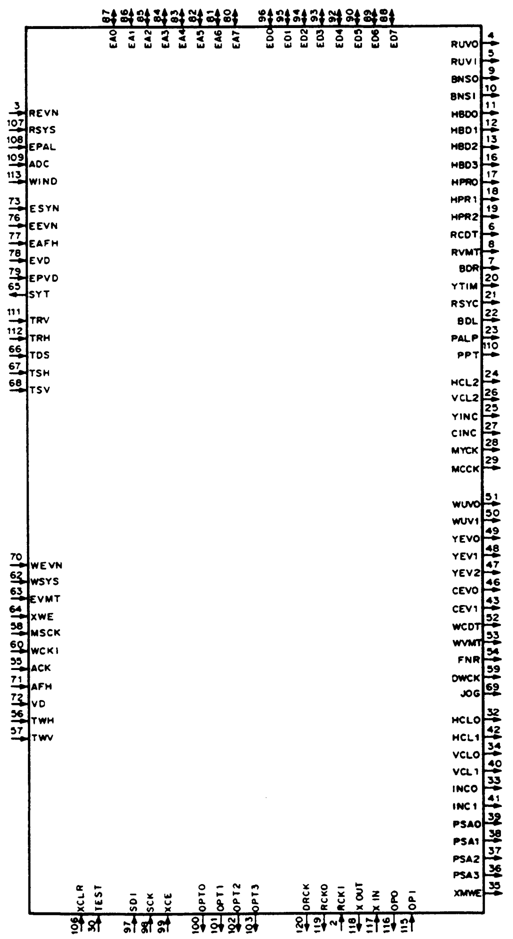

APC
BPF
CHROMA DECODER
SYNC MULTIPLEX
CHROMA NOISE REDUCER
DELAY BLOCK
Y NOISE REDUCER
PHASE DETECT
WINDOW COMPARATE
PEDESTAL ERROR
CS0 CS1 FSC
AHD
CHD
CMPT
RBT
ACK
WEVN
WCY0 – WCY7
USC0
JPI0
JPI1
WVMT
WCDT
WUV0
WUV1
OFSB
WY0 – WY7
INFS
EXFS
MPXT
MMTC
MPL
MTST
LIM1
LIMO
1/2 VDD
IM0
SW1
IM1
IM2
VCOI
BPE0 – BPE3
CMW0 – CMW3
CEV0
CEV1
CSR0 – CSR3
NRFD
YMW0 – YMW7
YEV0 – YEV2
YSR0 – YSR7
DOP
FNR
PED0 – PED1
PHEN
PINV
YHD
OUT0
OUT1
OUT2
COCK
VCOO
YSYS
SADM
YDLY
CTH
CMCK
PD
YMCK
CLR
SWITCH CONTROL SIGNAL

CXD1228Q (SONY) FLAT PACKAGE
C-MOS MEMORY ADDRESS CONTROLLER
– TOP VIEW –


GND
VDD(+5V)
GND
VDD(+5V)
GND
GND
VDD(+5V)
GND
VDD(+5V)
GND
GND

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	–	GND	31	–	GND	61	–	GND	91	–	GND
2	I	RCK1	32	O	HCL0	62	I	WSYS	92	I/O	ED4
3	I	REVN	33	O	INC0	63	I	EVMT	93	I/O	ED3
4	O	RUV0	34	O	VCL0	64	I	XWE	94	I/O	ED2
5	O	RUV1	35	O	XMWE	65	O	SYT	95	I/O	ED1
6	O	RCDT	36	O	PSA3	66	I	TDS	96	I/O	ED0
7	O	BDR	37	O	PSA2	67	I	TSH	97	I	SD1
8	O	RVMT	38	O	PSA1	68	I	TSV	98	I	SDK
9	O	BNS0	39	O	PSA0	69	O	JOG	99	I	XCE
10	O	BNS1	40	O	VCL1	70	I	WEVN	100	O	OPT0
11	O	HBD0	41	O	INC1	71	I	AFH	101	O	OPT1
12	O	HBD1	42	O	HCL1	72	I	VD	102	O	OPT2
13	O	HBD2	43	O	CEV1	73	I	ESYN	103	O	OPT3
14	–	VDD (+5V)	44	–	VDD (+5V)	74	–	VDD (+5V)	104	–	VDD (+5V)
15	–	GND	45	–	GND	75	–	GND	105	–	GND
16	O	HBD3	46	O	CEV0	76	I	EEVN	106	I	XCLR
17	O	HPR0	47	O	YEV2	77	I	EAFH	107	I	RSYS
18	O	HPR1	48	O	YEV1	78	I	EVD	108	I	EPAL
19	O	HPR2	49	O	YEV0	79	I	EPVD	109	I	ADC
20	O	YTIM	50	O	WUV1	80	I/O	EA7	110	O	PPT
21	O	RSYC	51	O	WUV0	81	I/O	EA6	111	I	TRV
22	O	BDL	52	O	WCDT	82	I/O	EA5	112	I	TRH
23	O	PALP	53	O	WVMT	83	I/O	EA4	113	I	WIND
24	O	HCL2	54	O	FNR	84	I/O	EA3	114	O	VPER
25	O	YINC	55	I	ACK	85	I/O	EA2	115	I	OPI
26	O	VCL2	56	I	TWH	86	I/O	EA1	116	O	OPO
27	O	CINC	57	I	TWV	87	I/O	EA0	117	I	XIN
28	O	MYCK	58	I	MSCK	88	I/O	ED7	118	O	XOUT
29	O	MCCK	59	O	DWCK	89	I/O	ED6	119	O	RCKO
30	I	TST	60	I	WCKI	90	I/O	ED5	120	O	DRCK


READ ADDRESS CONTROL
SYNC GENERATOR
ROM (READ)
ROM TEST
ROM (WRITE)
WRITE ADDRESS CONTROL
MICRO COMPUTER INTERFACE
CLOCK GENERATOR
REVN
RSYS
EPAL
ADC
TRV
TRH
WIND
ESYN
EEVN
EAFH
EVD
EPVD
TDS
TSH
TSV
SYT
EA0-7
ED0-7
TWH
TWV
MSCK
WCKI
WSYS
EVMT
XWE
DWCK
WEVN
AFH
VD
JOG
XCLR
TEST
SDI
SCK
XCE
OPT0-3
RUV0,1
BNS0,1
HBD0-3
HPR0-2
RCDT
BDR
RVMT
YTIM
RSYC
BDL
PALP
PPT
VPER
HCL2
YINC
YCL2
CINC
MYCK
MCCK
HCL0,1
INC0,1
VCL0,1
PSA0-3
XMWE
CEV0,1
YEV0-2
WUV0,1
WCDT
WVMT
FNR
ACK
OPI, OPO
XIN, XOUT
RCKI, RCKO
DRCK


REVN
RSYS
EPAL
ADC
WIND
ESYN
EEVN
EAFH
EVD
EPVD
SYT
TRV
TRH
TDS
TSH
TSV
WEVN
WSYS
EVMT
XWE
MSCK
WCKI
ACK
AFH
VD
TWH
TWV
RUVO
RUVI
BNSO
BNS1
HBDO
HBD1
HBD2
HBD3
HPRO
HPR1
HPR2
RCDT
RVMT
BDR
YTIM
RSYC
BDL
PALP
PPT
HCL2
VCL2
YINC
CINC
MYCK
MCCK
WUVO
WUV1
YEVO
YEV1
YEV2
CEVO
CEV1
WCDT
WVMT
FNR
DWCK
JOG
HCLO
HCL1
VCLO
VCL1
INCO
INC1
PSAO
PSA1
PSA2
PSA3
XMWE
XCLR
TEST
SDI
SCK
XCE
OPTO
OPT1
OPT2
OPT3
DRCK
RCKO
RCKI
XOUT
X IN
OPO
OPI

INPUT
ACK : CLOCK INPUT FOR APC (H : B/W MODE. L : COLOR MODE)
ADC : CHROMA ADDRESS CONTROL INPUT
AFH : AFC H DRIVE INPUT
EAFH : EXTERNAL SYNC MODE H DRIVE INPUT
EEVN : EXTERNAL SYNC MODE EVEN/ODD SELECT INPUT
EPAL : EXTERNAL SYNC MODE PAL COLOR ID INPUT
EPVD : REFERENCE VD
ESYN : EXTERNAL SYNC MODE CHROMA SYNC INPUT
EVD : EXTERNAL SYNC MODE V DRIVE INPUT
EVMT : EXTERNAL VIDEO MUTE INPUT (H : MUTE. L : NORMAL)
MSCK : MASTER CLOCK INPUT
OPI : INVERTER INPUT
RCKI : READ CLOCK INPUT
REVN : READ EVEN/ODD FIELD MONITOR INPUT
RSYS : READ SYNC SELECT INPUT (H : NTSC. L : PAL)
SDI : SERIAL DATA INPUT
SDK : SERIAL CLOCK INPUT
TDS. TRH. TRV. TSH
TST. TSV. TWH. TWV
: TEST PIN
VD : VERTICAL SYNC DETECT INPUT
WCKI : WRITE CLOCK INPUT
WEVN : WRITE EVEN/ODD FIELD MONITOR INPUT
WIND : WINDOW COMPARATOR INPUT FOR V-PLL
WSYS : WRITE SYNC SELECT INPUT (H : NTSC. L : PAL)
XCE : CHIP ENABLE INPUT
XCLR : DIRECT CLEAR INPUT
XIN : CLOCK INPUT
XWE : WRITE ENABLE INPUT

OUTPUT
BDL : Y BORDER LEVEL OUTPUT
BDR : BORDER OUTPUT
*1 BNS0. 1 : SOLARIZATION CONROL OUTPUTS
*2 CEV0. 1 : C NOISE REDUCER MODE SELECT OUTPUTS
CINC : READ PORT CHROMA INCREMENT OUTPUT
DRCK : DELAYED READ CLOCK OUTPUT
DWCK : DELAYED WRITE CLOCK OUTPUT
FNR : NOISE REDUCER ON/OFF CONTROL OUTPUT
*3 HBD0. 1 : U-AXIS BORDER LEVEL OUTPUTS
*4 HBD2. 3 : V-AXIS BORDER LEVEL OUTPUTS
HCL0 : WRITE PORT HORIZONTAL CLEAR OUTPUT
HCL1. 2 : READ PORT HORIZONTAL CLEAR OUTPUTS
*5 HPR0 – HPR2 : H PROCESS OUTPUTS
INC0 : WRITE PORT LINE INCREMENT OUTPUT
INC1 : READ PORT LINE INCREMENT OUTPUT
JOG : REFERENCE CONTROL OUTPUT
MCCK : READ PORT CHROMA CLOCK OUTPUT
MYCK : READ PORT Y CLOCK OUTPUT
OPO : INVERTER OUTPUT
OPT0 – OPT3 : OPTION OUTPUTS
PALP : PAL PHASE CONTROL OUTPUT
PPT : SMALL PICTURE TIMING OUT
PSA0 – PSA3 : WRITE PORT TRANSFER SYNC OUTPUTS
RCDT : READ FRAIMIG CODE TIMING OUTPUT
RCK0 : READ CLOCK OUTPUT
RUV0. 1 : READ U/V TIMING OUTPUTS
RVMT : READ MUTING OUTPUT
SYT : MONITOR PIN FOR TEST
VCL0 : WRITE PORT VERTICAL CLEAR OUTPUT
VCL1. 2 : READ PORT VERTICAL CLEAR OUTPUTS
VPER : V PHASE COMPARATOR OUTPUT
WCDT : WRITE FRAMING CODE TIMING OUTPUT
WUV0. 1 : WRITE U/V TIMING OUTPUTS
WVMT : WRITE VIDEO MUTE OUTPUT
XMWE : WRITE PORT WRITE ENABLE OUTPUT
XOUT : CLOCK OUTPUT
*6 YEV0 – YEV2 : Y NOISE REDUCER MODE SELECT OUTPUTS
YINC : READ PORT Y INCREMENT OUTPUT
YTIM : Y TIMING CONTROL OUTPUT

INPUT/OUTPUT
EA0 – EA7 : ROM TEST TERMINAL INPUTS/OUTPUTS
ED0 – ED7 : ROM TEST TERMINAL INPUTS/OUTPUTS

*1 SOLORIZATION RESOLUTION

INPUTS		OUTPUTS				
BNS0	BNS1	RY0	RY1	RY2	RY3	RY4
0	0	0	0	1	X	X
0	1	0	0	0	1	X
1	0	0	0	0	0	1
1	1	X	X	X	X	X

*2 CHROMA SIGNAL NOISE REDUCER SELECTION

CEV0	CEV1	OPERATION
0	0	NOISE REDUCER (SOFT)
0	1	NOISE REDUCER (MIDDLE)
1	0	NOISE REDUCER (STRONG)
1	1	NO OPERATION

*3 U-AXIS BORDER LEVEL

HBD1	HBD0	LEVEL
0	0	20 IRE
0	1	– 20 IRE
1	0	– 30 IRE
1	1	0 IRE

*4 V-AXIS BORDER LEVEL

HBD3	HBD2	LEVEL
0	0	20 IRE
0	1	– 20 IRE
1	0	– 30 IRE
1	1	0 IRE

*5 H PROCESS MODE SELECTION

HPR2	HPR1	HPR0	OPERATION
0	0	0	V-ENHANCE (SOFT)
0	0	1	V-ENHANCE (SOFT)
0	1	0	V-ENHANCE (MIDDLE)
0	1	1	V-ENHANCE (STRONG)
1	0	0	MIX RATIO $H_T:H_P=1:1$
1	0	1	MIX RATIO $H_T:H_P=1:3$
1	1	0	MIX RATIO $H_T:H_P=3:1$
1	1	1	NO PLAY

0 : LOW LEVEL
1 : HIGH LEVEL

H_T = THROUGH
H_P = 1H DELAY

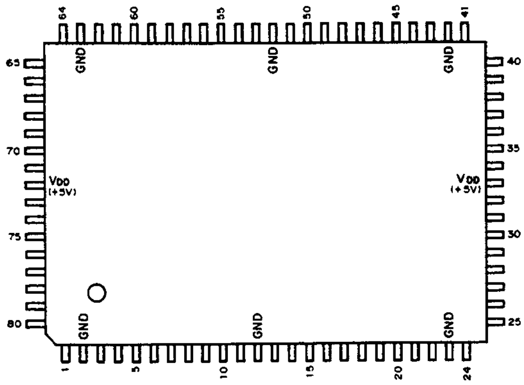
*6 Y SIGNAL NOISE REDUCER SELECTION

YEV0	YEV1	YEV2	OPERATION
0	0	0	NOISE REDUCER (SOFT)
0	0	1	NOISE REDUCER (MIDDLE)
0	1	0	NOISE REDUCER (STRONG)
0	1	1	AFTER IMAGE
1	0	0	VERTICAL FILTER
1	0	1	FADE IN/OUT
1	1	0	SELECT AFTER IMAGE
1	1	1	NO OPERATION

CXD1227Q (SONY)

C-MOS DIGITAL CHROMA ENCODER/VERTICAL ENHANCER

– TOP VIEW –


64
60
55
50
45
41
65
70
75
80
40
35
30
25
1
5
10
15
20
24
GND
GND
GND
GND
GND
GND
VDD (+5V)
VDD (+5V)

PIN ASSIGNMENT (VDD = + 5V)

PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	O	TST0	21	I	CMR3	41	I	HPR2	61	I	CCKI
2	–	GND	22	I	CMR2	42	–	GND	62	O	CCKO
3	O	TST1	23	–	GND	43	O	DOC	63	–	GND
4	O	RC0	24	I	CMR1	44	I	HPR1	64	O	XOUT
5	O	RC1	25	I	CMR0	45	I	HPR0	65	I	XIN
6	O	RC2	26	O	FRM0	46	I	HBD3	66	O	USCO
7	O	RC3	27	O	FRM1	47	I	HBD2	67	I	CLRI
8	O	RC4	28	O	JPI0	48	I	HBD1	68	O	PCOM
9	O	RC5	29	O	JPI1	49	I	HBD0	69	I	CTLZ
10	O	RC6	30	O	RFSC	50	I	BNS1	70	I	FSIG
11	O	RC7	31	I	CS0	51	I	BNS0	71	I	FREF
12	–	GND	32	I	CS1	52	–	GND	72	O	RY0
13	I	YMR7	33	–	VDD	53	I	YCKI	73	–	VDD
14	I	YMR6	34	I	SDAM	54	I	RVMT	74	O	RY1
15	I	YMR5	35	I	PALP	55	I	BDR	75	O	RY2
16	I	YMR4	36	I	OFSB	56	I	YCFR	76	O	RY3
17	I	YMR3	37	I	BDL7	57	I	RCDT	77	O	RY4
18	I	YMR2	38	I	BDL6	58	I	RUV1	78	O	RY5
19	I	YMR1	39	I	RSYC	59	I	RUV0	79	O	RY6
20	I	YMR0	40	I	YTIM	60	O	REVN	80	O	RY7

INPUT

BDR : BORDER TIMING INPUT
*1 BDL6, 7 : Y BORDER LEVEL SELECT INPUTS
*2 BNS0, 1 : SOLORIZATION RESOLUTION SELECT
CCKI : CHROMA CLOCK INPUT (4fsc)
CLRI : CLEAR INPUT
CMR0 – 3 : CHROMA DATA INPUTS
*3 CS0, 1 : CHROMA SYSTEM SELECT INPUTS
CTLZ : PHASE COMPARATOR OUT CONTROL INPUT
FREF : PHASE COMPARATOR REFERRENCE SIGNAL INPUT
FSIG : PHASE COMPARATOR SIGNAL INPUT
*4 HBD0, 1 : U-AXIS BORDER LEVEL INPUTS
*5 HBD2, 3 : V-AXIS BORDER LEVEL INPUTS
*6 HPR0 – 2 : H PROCESS INPUTS
OFSB : OFF SET BINARY MODE INPUT
PALP : PAL PHASE CONTROL INPUT
RCDT : READ FRAMING CODE TIMING INPUT
RSYC : READ SYNC INPUT
RUV0 – 1 : READ U/V TIMING INPUTS
RVMT : READ VIDEO MUTE INPUT
SDAM : D/A MODE SELECT INPUT
XIN : CHROMA CLOCK INPUT FOR OSCILLATOR
YCKI : Y CLOCK INPUT (910f_H)
YCFR : Y/C FRAMING ON/OFF SELECT INPUT
YMR0 – 7 : Y DATA INPUTS
YTIM : Y TIMING CONTROL INPUT

OUTPUT

CCKO : CHROMA CLOCK OSCILLATOR OUTPUT (4fsc)
DOC : DROP OUT CONTROL MONITOR OUTPUT
FRM0, 1 : CHROMA FRAMING CODE OUTPUTS
JPI0, 1 : ID CODE MONITOR OUTPUTS (D2, D3)
PCOM : PHASE COMPARATOR OUTPUT
RC0 – 7 : READ CHROMA D/A OUTPUTS
REVN : READ EVEN/$\overline{\text{ODD}}$ FIELD MONITOR OUTPUT
RFSC : READ fsc OUTPUT
RY0 – 7 : READ Y D/A OUTPUTS
TST0, 1 : TEST TERMINALS
USCO : USER CODE FOR OPTION
XOUT : CHROMA CLOCK OUTPUT FOR OSCILLATOR

TABLE 6
*6 H PROCESS MODE SELECTION

HPR2	HPR1	HPR0	OPERATION
0	0	0	V-ENHANCE (SOFT)
0	0	1	V-ENHANCE (SOFT)
0	1	0	V-ENHANCE (MIDDLE)
0	1	1	V-ENHANCE (STRONG)
1	0	0	MIX RATIO $H_T:H_P$=1:1
1	0	1	MIX RATIO $H_T:H_P$=1:3
1	1	0	MIX RATIO $H_T:H_P$=3:1
1	1	1	NO PLAY

0 : LOW LEVEL
1 : HIGH LEVEL

H_T = THROUGH
H_P = 1H DELAY

TABLE 1
*1 BORDER LEVEL

BDL7	BDL6	LEVEL
0	0	8H (– 50IRE)
0	1	48H (– 100IRE)
1	0	C8H (CLAMP LEVEL)
1	1	C8H (0IRE)

TABLE 2
*2 SOLORIZATION RESOLUTION

INPUTS		OUTPUTS				
BNS0	BNS1	RY0	RY1	RY2	RY3	RY4
0	0	0	0	1	X	X
0	1	0	0	0	1	X
1	0	0	0	0	0	1
1	1	X	X	X	X	X

TABLE 3
*3 CHROMA SYSTEM MODE SELECTION

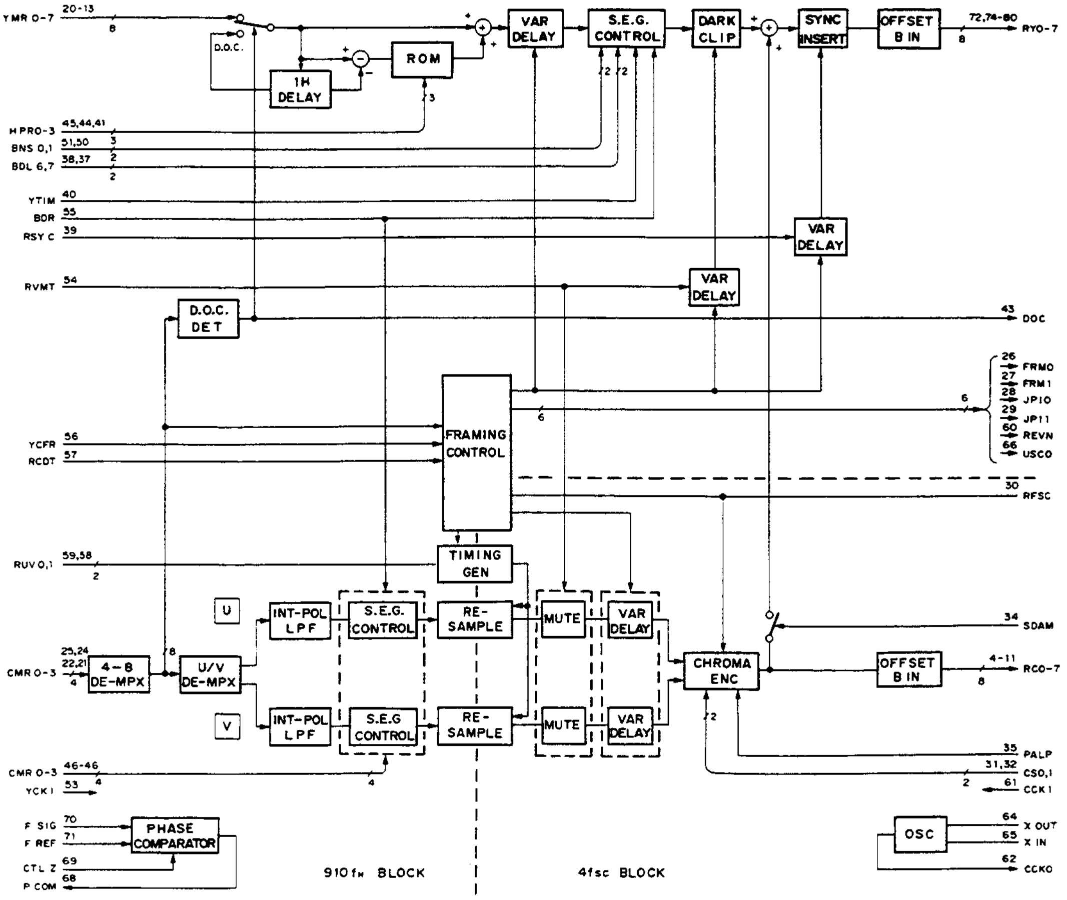
CS1	CS0	MODE
0	0	NTSC
0	1	PAL
1	0	CHROMA BASE BAND OUT
1	1	(PAL)

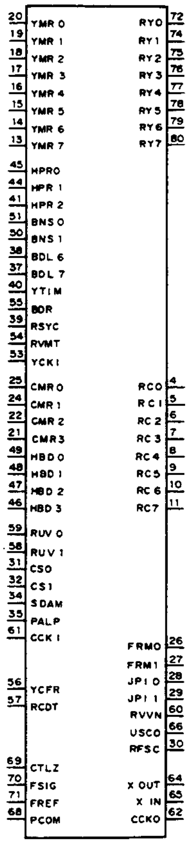
TABLE 4
*4 U-AXIS BORDER LEVEL

HBD1	HBD0	LEVEL
0	0	20 IRE
0	1	– 20 IRE
1	0	– 30 IRE
1	1	0 IRE

TABLE 5
*5 V-AXIS BORDER LEVEL

HBD3	HBD2	LEVEL
0	0	20 IRE
0	1	– 20 IRE
1	0	– 30 IRE
1	1	0 IRE

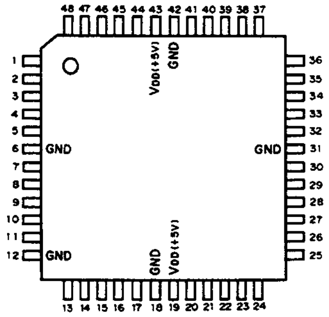

YMR 0-7
20-13
8
D.O.C.
1H DELAY
ROM
VAR DELAY
S.E.G. CONTROL
DARK CLIP
SYNC INSERT
OFFSET B IN
72,74-80
8
RY0-7
H PR0-3
45,44,41
3
BNS 0,1
51,50
2
BDL 6,7
38,37
2
YTIM 40
BDR 55
RSY C 39
RVMT 54
VAR DELAY
VAR DELAY
D.O.C. DET
43
DOC
FRAMING CONTROL
6
26 FRM0
27 FRM1
28 JPI0
29 JPI1
60 REVN
66 USCO
30 RFSC
YCFR 56
RCDT 57
RUV 0,1
59,58
2
TIMING GEN
U
V
INT-POL LPF
S.E.G. CONTROL
RE-SAMPLE
MUTE
VAR DELAY
CHROMA ENC
OFFSET B IN
34 SDAM
4-11
8
RC0-7
CMR 0-3
25,24
22,21
4
4-8 DE-MPX
8
U/V DE-MPX
CMR 0-3
46-46
4
YCK I 53
35 PALP
31,32 CS0,1
61 CCK I
F SIG 70
F REF 71
CTL Z 69
P COM 68
PHASE COMPARATOR
OSC
64 X OUT
65 X IN
62 CCKO
910fH BLOCK
4fsc BLOCK


20 YMR 0
19 YMR 1
18 YMR 2
17 YMR 3
16 YMR 4
15 YMR 5
14 YMR 6
13 YMR 7
45 HPR0
44 HPR 1
41 HPR 2
51 BNS 0
50 BNS 1
38 BDL 6
37 BDL 7
40 YTIM
55 BDR
39 RSYC
54 RVMT
53 YCKI
25 CMR 0
24 CMR 1
22 CMR 2
21 CMR 3
49 HBD 0
48 HBD 1
47 HBD 2
46 HBD 3
59 RUV 0
58 RUV 1
31 CS0
32 CS1
34 SDAM
35 PALP
61 CCK I
56 YCFR
57 RCDT
69 CTLZ
70 FSIG
71 FREF
68 PCOM
RY0 72
RY1 74
RY2 75
RY3 76
RY4 77
RY5 78
RY6 79
RY7 80
RC0 4
RC1 5
RC2 6
RC3 7
RC4 8
RC5 9
RC6 10
RC7 11
FRM0 26
FRM1 27
JP1 0 28
JP1 1 29
RVVN 60
USCO 66
RFSC 30
X OUT 64
X IN 65
CCKO 62

CXD1229Q (SONY) FLAT PACKAGE

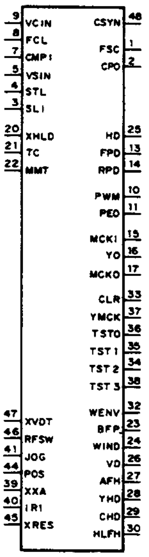
C-MOS AUTOMATIC FREQUENCY CONTROL (AFC) /SYNC SEPARATOR

- TOP VIEW -


48 47 46 45 44 43 42 41 40 39 38 37
1 2 3 4 5 6 7 8 9 10 11 12
36 35 34 33 32 31 30 29 28 27 26 25
13 14 15 16 17 18 19 20 21 22 23 24
GND
GND
GND
GND
VDD(+5V)
GND
GND
VDD(+5V)

PIN ASSIGNMENT (V$_{DD}$ = + 5V)

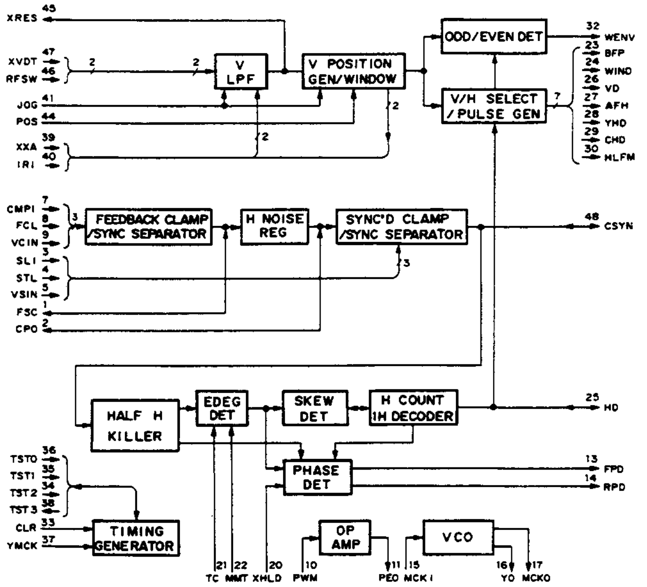
PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	I/O	FCS	13	O	FPD	25	O	HD	37	I	YMCK
2	I/O	CPO	14	O	RPD	26	O	VD	38	O	TST3
3	I	SLI	15	I	MCKI	27	O	AFH	39	I/O	XXA
4	I	STL	16	O	YO	28	O	YHD	40	I/O	IR1
5	I	VSIN	17	O	MCKO	29	O	CHD	41	I	JOG
6	–	GND	18	–	GND	30	O	HLFH	42	–	GND
7	I	CMPI	19	–	V$_{DD}$	31	–	GND	43	–	V$_{DD}$
8	I	FCL	20	I	XHLD	32	O	WEVN	44	I	POS
9	I	VCIN	21	O	TC	33	I	CLR	45	O	XRES
10	I	PWM	22	I	MMT	34	I	TST2	46	I	RFSW
11	O	PEO	23	O	BFP	35	I	TST1	47	I	XVDT
12	–	GND	24	O	WIND	36	I	TST0	48	O	CSYN


9 VCIN
8 FCL
7 CMPI
5 VSIN
4 STL
3 SLI
20 XHLD
21 TC
22 MMT
47 XVDT
46 RFSW
41 JOG
44 POS
39 XXA
40 IR1
45 XRES
CSYN 48
FSC 1
CPO 2
HD 25
FPD 13
RPD 14
PWM 10
PEO 11
MCKI 15
YO 16
MCKO 17
CLR 33
YMCK 37
TST0 36
TST1 35
TST2 34
TST3 38
WENV 32
BFP 23
WIND 24
VD 26
AFH 27
YHD 28
CHD 29
HLFH 30

INPUT
CLR : DIRECT CLEAR INPUT
CMPI : FEED BACK CLAMP SLICE LEVEL INPUT
FCL : FEED BACK CLAMP SYNC CHIP LEVEL INPUT
JOG : REFERENCE CONTROL INPUT
MCKI : CLOCK (VCO) INVERTER INPUT
MMT : MONO MULTI TEST PIN (H : NORMAL) INPUT
POS : PHASE REFERENCE SELECT
PWM : OP AMP INPUT
RFSW : RF SW PULSE INPUT
SLI : SYNC CLAMP SLICE LEVEL INPUT
STL : SYNC CLAMP SYNC CHIP LEVEL INPUT
TST0 : L : NORMAL/H : TEST MODE INPUT
TST1, 2 : AFC LOCK PHASE COARSE ADJUST INPUTS
VCIN : FEED BACK CLAMP VIDEO INPUT
VSIN : SYNC CLAMP VIDEO INPUT
XHLD : H : AFC ERROR ACTIVE/L : AFC ERROR HOLD INPUT
XVDT : V DETECT COMPOSITE SYNC INPUT
YMCK : MASTER CLOCK INPUT

OUTPUT
AFH : AFC H DRIVE OUTPUT
BFP : BURST FLAG PULSE OUTPUT
CHD : H SYNC OUTPUT FOR BURST DETECT
FPD : AFC SUB LOOP PHASE ERROR OUTPUT
HLFH : $1/2f_H$ (≒ 7.5 kHz) OUTPUT
MCKO : CLOCK (VCO) INVERTER OUTPUT ($910f_H$)
PEO : OP AMP OUTPUT
RPD : AFC MAIN LOOP PHASE ERROR OUTPUT
TST3 : L : NORMAL, H : TEST MODE OUTPUT
VD : VERTICAL SYNC DETECT OUTPUT
WEVN : WRITE EVEN/ODD FIELD DETECT OUTPUT
WIND : WINDOW COMPARATOR OUTPUT FOR V-PLL
XRES : V DETECT LPF OUTPUT
YO : CLOCK (VCO) INVERT OUTPUT
YHD : PEDESTAL CLAMP TIMING OUTPUT

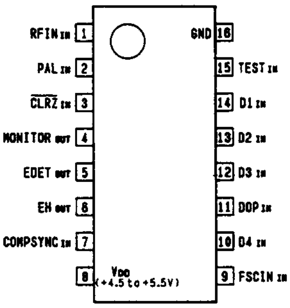
INPUT/OUTPUT
CPO : CLAMP PULSE INPUT/OUTPUT
CSYN : CLAMP SYNC SEPARATE INPUT/OUTPUT
FCS : FEED BACK CLAMP SYNC SEPARATE INPUT/OUTPUT
HD : AFC H DIRECT INPUT/OUTPUT
IR1 : MONITOR PIN FOR TEST INPUT/OUTPUT
TC : AFC LOCK PHASE FINE ADJUST INPUT/OUTPUT
XXA : MONITOR PIN FOR TEST INPUT/OUTPUT

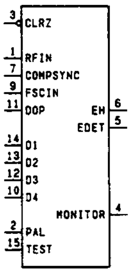

XRES 45
XVDT 47
RFSW 46
JOG 41
POS 44
XXA 39
IR1 40
2
2
V LPF
V POSITION GEN/WINDOW
2
2
ODD/EVEN DET
V/H SELECT /PULSE GEN
7
32 WENV
23 BFP
24 WIND
26 VD
27 AFH
28 YHD
29 CHD
30 HLFM
CMPI 7
FCL 8
VCIN 9
SLI 3
STL 4
VSIN 5
FSC 1
CPO 2
3
FEEDBACK CLAMP /SYNC SEPARATOR
H NOISE REG
SYNC'D CLAMP /SYNC SEPARATOR
3
48 CSYN
HALF H KILLER
EDEG DET
SKEW DET
H COUNT 1H DECODER
25 HD
PHASE DET
13 FPD
14 RPD
TST0 36
TST1 35
TST2 34
TST3 38
CLR 33
YMCK 37
TIMING GENERATOR
OP AMP
VCO
21 TC
22 MMT
20 XHLD
10 PWM
11 PEO
15 MCKI
16 YO
17 MCKO

CXD2107M (SONY) FLAT PACKAGE

C-MOS DEFINITION DETECTOR

- TOP VIEW -

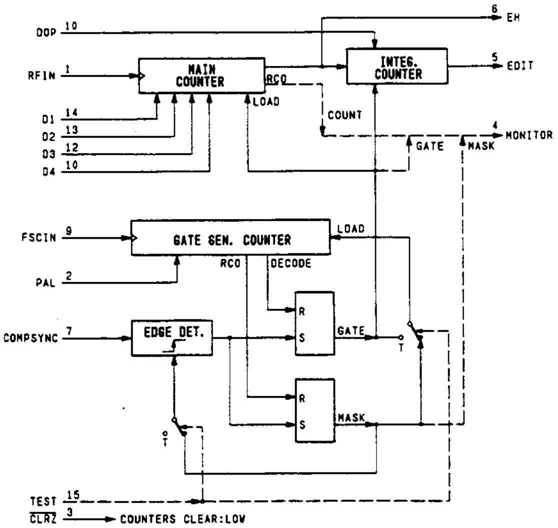

RFIN IN 1
PAL IN 2
CLRZ IN 3
MONITOR OUT 4
EDET OUT 5
EH OUT 6
COMPSYNC IN 7
8 VDD (+4.5 to +5.5V)
GND 16
15 TEST IN
14 D1 IN
13 D2 IN
12 D3 IN
11 DOP IN
10 D4 IN
9 FSCIN IN

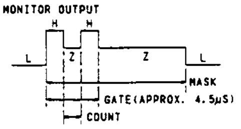

3 CLRZ
1 RFIN
7 COMPSYNC
9 FSCIN
11 DOP
14 D1
13 D2
12 D3
10 D4
2 PAL
15 TEST
EH 6
EDET 5
MONITOR 4

INPUT
CLRZ : CLEAR SIGNAL INPUT FOR INTERNAL COUNTERS
COMPSYNC: COMPOSITE SYNC INPUT
D1–D4 : LOAD DATA INPUTS FOR MAIN COUNTER (D0=HIGH, FIXED DATA)
DOP : DROPOUT COMPENSATION PULSE INPUT
FSCIN : COLOR SUBCARRIER INPUT. NTSC=3.579545MHz, PAL=4.433619MHz
PAL : OPERATION MODE SELECT INPUT. HIGH=PAL, LOW=NTSC
RFIN : PLAYBACK Y RF SIGNAL INPUT
TEST : TEST CONTROL INPUT. NORMAL=LOW

OUTPUT
EDET : E* MODE DETECTION OUTPUT, CONTINUOUS 16H
EH : E* MODE DETECTION OUTPUT, DISTINGUISH IN 1H
MONITOR : MONITOR OUTPUT OF COUNT, GATE, AND MASK PULSES

NOTE
E* : EXTENDED DEFINITION

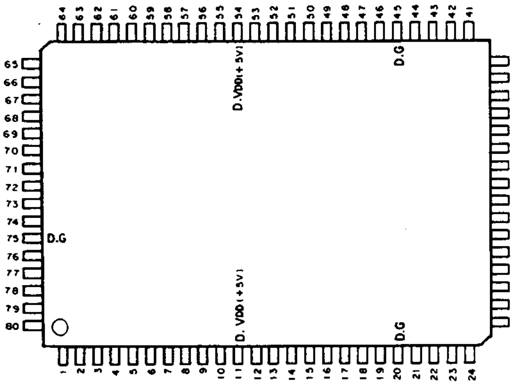

DOP 10
RFIN 1
D1 14
D2 13
D3 12
D4 10
MAIN COUNTER
RCO
LOAD
COUNT
INTEG. COUNTER
6 EH
5 EDIT
4 MONITOR
GATE
MASK
FSCIN 9
GATE SEN. COUNTER
LOAD
RCO
DECODE
PAL 2
COMPSYNC 7
EDGE DET.
R
S
GATE
T
R
S
MASK
T
TEST 15
CLRZ 3
COUNTERS CLEAR:LOW


MONITOR OUTPUT
H
H
L
Z
Z
L
MASK
GATE(APPROX. 4.5μS)
COUNT

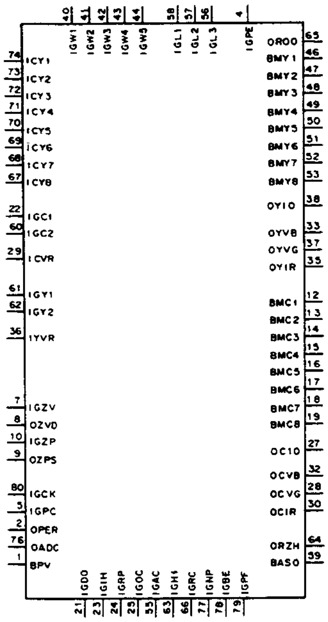
CXD2105AQ (SONY) FLAT PACKAGE

C-MOS DIGITAL COMB FILTER FOR VTR'S

- TOP VIEW -


D.VDD(+5V)
D.G
D.G
D. VDD(+5V)
D.G
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	BPV	21	I	IGD0	41	I	IGW2	61	I	IGY1
2	O	OPER	22	I	IGC1	42	I	IGW3	62	I	IGY2
3	-	A.VDD P	23	I	IGIH	43	I	IGW4	63	I	IGH1
4	I	IGPE	24	I	IGRP	44	I	IGW5	64	O	ORZH
5	I	IGPC	25	I	IGOC	45	–	D.G	65	O	OR00
6	–	A.G P	26	–	A.VDD C	46	I/O	BMY1	66	I	IGRC
7	I	IGZV	27	O	OCIO	47	I/O	BMY2	67	I	IYC8
8	O	OZVD	28	O	OCVG	48	I/O	BMY3	68	I	IYC7
9	O	OZPS	29	–	ICVR	49	I/O	BMY4	69	I	IYC6
10	I	IGZP	30	O	OCIR	50	I/O	BMY5	70	I	IYC5
11	–	D.VDD	31	–	A.G C	51	I/O	BMY6	71	I	IYC4
12	I/O	BMC1	32	O	OCVB	52	I/O	BMY7	72	I	IYC3
13	I/O	BMC2	33	O	OYVB	53	I/O	BMY8	73	I	IYC2
14	I/O	BMC3	34	–	A.G Y	54	–	D.VDD	74	I	IYC1
15	I/O	BMC4	35	O	OYIR	55	I	IGAC	75	–	D.G
16	I/O	BMC5	36	–	IYVR	56	I	IGL3	76	O	OADC
17	I/O	BMC6	37	O	OYVG	57	I	IGL2	77	I	IGNP
18	I/O	BMC7	38	O	OYIO	58	I	IGL1	78	I	IGBE
19	I/O	BMC8	39	–	A.VDD Y	59	I/O	BASO	79	I	IGPF
20	–	D.G	40	I	IGW1	60	I	IGC2	80	I	IGCK

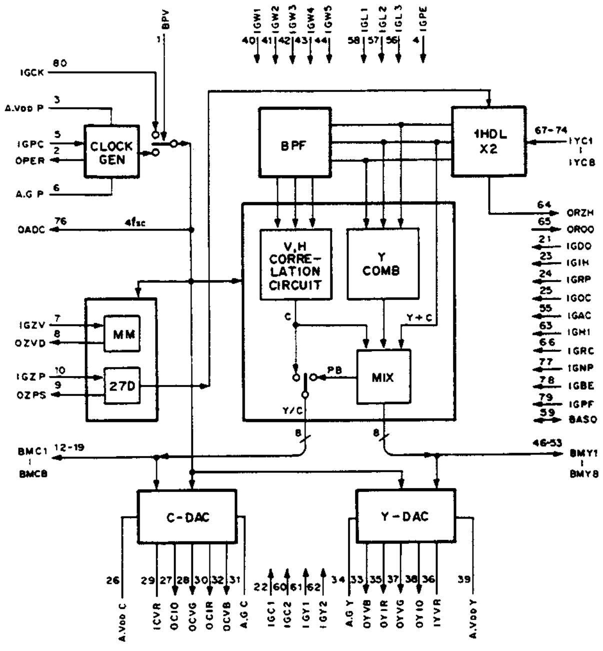

40 IGW1
41 IGW2
42 IGW3
43 IGW4
44 IGW5
58 IGL1
57 IGL2
56 IGL3
4 IGPE
74 ICY1
73 ICY2
72 ICY3
71 ICY4
70 ICY5
69 ICY6
68 ICY7
67 ICY8
22 IGC1
60 IGC2
29 ICVR
61 IGY1
62 IGY2
36 IYVR
7 IGZV
8 OZVD
10 IGZP
9 OZPS
80 IGCK
5 IGPC
2 OPER
76 OADC
1 BPV
65 OR00
46 BMY1
47 BMY2
48 BMY3
49 BMY4
50 BMY5
51 BMY6
52 BMY7
53 BMY8
38 OYIO
33 OYVB
37 OYVG
35 OYIR
12 BMC1
13 BMC2
14 BMC3
15 BMC4
16 BMC5
17 BMC6
18 BMC7
19 BMC8
27 OCIO
32 OCVB
28 OCVG
30 OCIR
64 ORZH
39 BASO
21 IGDO
23 IGIH
24 IGRP
25 IGOC
55 IGAC
63 IGH1
66 IGRC
77 IGNP
78 IGBE
79 IGPF

INPUT
BPV : EXT/INT CLOCK SELECT
ICVR : ESTABLISHES MAXIMUM AMPLITUDE VALUE FOR OCIO (PIN 27)
IGAC : V CORRELATION CIRCUIT ON/OFF
IGBE : SINGLE WAVE DETECTION ON/OFF (Y/C SEPARATION MODE)
IGC1 : V CORRELATION CIRCUIT SELECT
IGC2 : CHROMA FLAT SECTION HORIZONTAL FILTER SELECT (Y/C SEPARATION MODE)
IGCK : EXTERNAL CLOCK
IGD0 : DROPOUT CORRECTION
IGH1 : FLAT SECTION HORIZONTAL FILTER SELECT (Y/C SEPARATION MODE)
IGIH : SLEW MODE SET
IGL1 – IGL3 : LIMITER LEVEL ADJUST FOR Y SIGNAL COMB FILTER
IGNP : NTSC/PAL FORMAT SELECT
IGOC : OUTPUT ENABLE
IGPC : VCO CONTROL
IGPE : TEST
IGPF : PLL SUBCARRIER
IGRC : DELAY LINE LENGTH ADJUST
IGRP : Y/C SEPARATION AND PLAYBACK MODE SELECT
IGW1 – IGW5 : Y COMB FILTER DEPTH ADJUST
IGY1, IGY2 : EDGE SECTION HORIZONTAL FILTER SELECT (Y/C SEPARATION MODE)
IGZP : 1-BIT DELAY CIRCUIT
IGZV : VCR HEAD SWITCHING
IYC1 – IYC8 : VIDEO SIGNAL
IYVR : ESTABLISHES MAXIMUM AMPLITUDE VALUE FOR OYIO (PIN 38)

OUTPUT
OADC : CLOCK
OCIO : CHROMA ANALOG SIGNAL
OCIR : CONNECT A RESISTOR 16x LARGE THAN THE RESISTOR AT OCIO (PIN 27)
OCVB : CONNECT TO DIGITAL GND WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OCVG : CONNECT TO AN ANALOG POWER SUPPLY WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OPER : PLL ERROR
OR00 : "0" IS DETECTED AT ALL INPUTS
ORZH : 1-BIT DELAY CIRCUIT
OYIO : Y ANALOG SIGNAL
OYIR : CONNECT A RESISTOR 16x LARGE THAN THE RESISTOR AT OYIO (PIN 38)
OYVB : CONNECT TO DIGITAL GND WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OYVG : CONNECT TO AN ANALOG POWER SUPPLY WHICH HAS A CAPACITANCE OF UP TO 0.1 μF
OZPS : 1-BIT DELAY CIRCUIT
OZVD : VSYNC PERIOD MASK

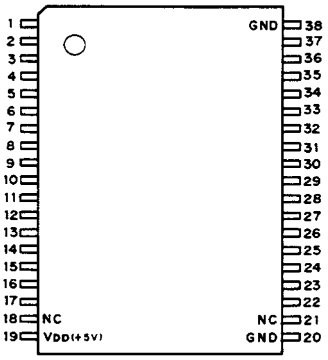
INPUT/OUTPUT
BASO : EDGE DETECTION LEVEL SELECT (Y/C SEPARATION MODE)
BMC1 – BMC8 : CHROMA DIGITAL SIGNAL
BMY1 – BMY8 : Y DIGITAL SIGNAL

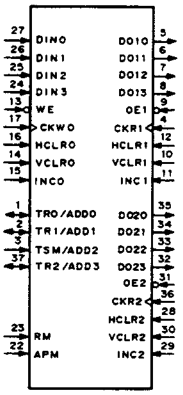
OTHER
A.G C : ANALOG GND FOR CHROMA D/A
A.G P : ANALOG GND FOR VCO
A.G Y : ANALOG GND FOR Y D/A
A.VDD C : ANALOG POWER SUPPLY FOR CHROMA D/A
A.VDD P : ANALOG POWER SUPPLY FOR VCO
A.VDD Y : ANALOG POWER SUPPLY FOR Y D/A
D.G : DIGITAL GND
D.VDD : POWER SUPPLY FOR DIGITAL


BPV
IGW1 IGW2 IGW3 IGW4 IGW5
IGL1 IGL2 IGL3
IGPE
1
40 41 42 43 44
58 57 56
4
IGCK 80
A.VDD P 3
IGPC 5
OPER 2
A.G P 6
CLOCK GEN
OADC 76
4fsc
BPF
1HDL X2
67-74
IYC1
IYC8
V,H CORRE-LATION CIRCUIT
Y COMB
C
Y+C
PB
Y/C
MIX
8
8
IGZV 7
OZVD 8
MM
IGZP 10
OZPS 9
27D
64 ORZH
65 OR00
21 IGDO
23 IGIH
24 IGRP
25 IGOC
55 IGAC
63 IGH1
66 IGRC
77 IGNP
78 IGBE
79 IGPF
59 BASO
BMC1 12-19 BMC8
46-53 BMY1 BMY8
C-DAC
Y-DAC
26 29 27 28 30 32 31
22 60 61 62
34 33 35 37 38 36
39
A.VDD C
ICVR OCIO OCVG OCIR OCVB A.G C
IGC1 IGC2 IGY1 IGY2
A.G Y OYVB OYIR OYVG OYIO IYVR
A.VDD Y

CXK1206AM (SONY) FLAT PACKAGE
CXK1206M (SONY) FLAT PACKAGE

C-MOS VIDEO FIELD MEMORY (960-COLUMNx306-ROWx4-BIT)
– TOP VIEW –


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18 NC
19 VDD(+5V)
GND 38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
NC 21
GND 20

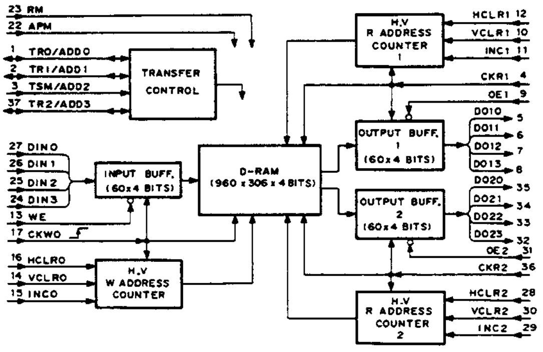

27 DIN0
26 DIN1
25 DIN2
24 DIN3
13 WE
17 CKW0
16 HCLR0
14 VCLR0
15 INC0
1 TR0/ADD0
2 TR1/ADD1
3 TSM/ADD2
37 TR2/ADD3
23 RM
22 APM
DO10 5
DO11 6
DO12 7
DO13 8
OE1 9
CKR1 4
HCLR1 12
VCLR1 10
INC1 11
DO20 35
DO21 34
DO22 33
DO23 32
OE2 31
CKR2 36
HCLR2 28
VCLR2 30
INC2 29

PIN	SIGNAL	DESCRIPTION
1	TR0/ADD0	W PORT 0 TRANSFER SYNC I/O, ADDRESS 0 INPUT
2	TR1/ADD1	R PORT 1 TRANSFER SYNC I/O, ADDRESS 1 INPUT
3	TSM/ADD2	TRANSFER SYNCHRONOUS MODE, ADDRESS 2 INPUT
4	CKR1	R PORT 1 SHIFT SIGNAL INPUT
5	DO10	R PORT 1 DATA 0 OUTPUT
6	DO11	R PORT 1 DATA 1 OUTPUT
7	DO12	R PORT 1 DATA 2 OUTPUT
8	DO13	R PORT 1 DATA 3 OUTPUT
9	OE1	R PORT 1 OUTPUT ENABLE INPUT
10	VCLR1	R PORT 1 VERTICAL CLEAR INPUT
11	INC1	R PORT 1 LINE INCREMENT INPUT
12	HCLR1	R PORT 1 HORIZONTAL CLEAR INPUT
13	WE	W PORT 0 WRITE ENABLE INPUT
14	VCLR0	W PORT 0 VERTICAL CLEAR INPUT
15	INC0	W PORT 0 LINE INCREMENT INPUT
16	HCLR0	W PORT 0 HORIZONTAL CLEAR INPUT
17	CKW0	W PORT 0 SHIFT SIGNAL INPUT
18	NC	(no connection)
19	VDD	+5V INPUT
20	GND	GND
21	NC	(no connection)
22	APM	ADDRESS PRESET MODE INPUT
23	RM	RECURSIVE MODE ENABLE INPUT
24	DIN3	W PORT 0 DATA 3 INPUT
25	DIN2	W PORT 0 DATA 2 INPUT
26	DIN1	W PORT 0 DATA 1 INPUT
27	DIN0	W PORT 0 DATA 0 INPUT
28	HCLR2	R PORT 2 HORIZONTAL CLEAR INPUT
29	INC2	R PORT 2 LINE INCREMENT INPUT
30	VCLR2	R PORT 2 VERTICAL CLEAR INPUT
31	OE2	R PORT 2 OUTPUT ENABLE INPUT
32	DO23	R PORT 2 DATA 3 OUTPUT
33	DO22	R PORT 2 DATA 2 OUTPUT
34	DO21	R PORT 2 DATA 1 OUTPUT
35	DO20	R PORT 2 DATA 0 OUTPUT
36	CKR2	R PORT 2 SHIFT SIGNAL INPUT
37	TR2/ADD3	R PORT 2 TRANSFER SYNC I/O, ADDRESS 3 INPUT
38	GND	GND

MODE SELECTION

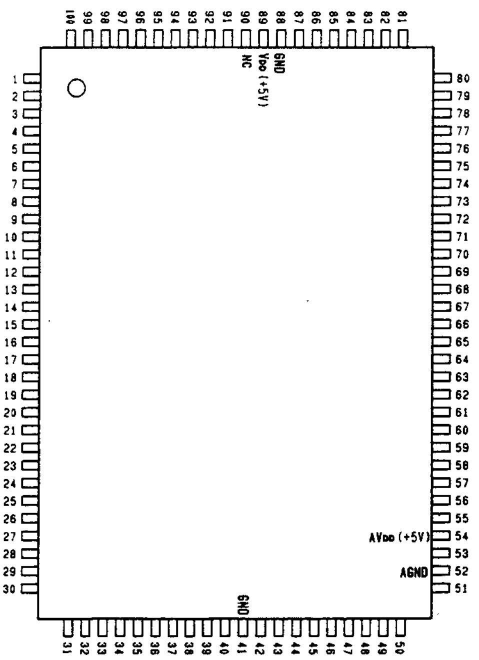
CONTROL INPUTS		TS,TR/ADD			MODE
RM	APM	TSM	TR 0-2	ADD 0-3	
0	0	0	OUT-PUT	-	NON RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE OUTPUT
0	0	1	IN-PUT	-	NON RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE INPUT
0	1	-	-	IN-PUT	NON RECURSIVE MODE, ADDRESS PRESET MODE
1	0	0	OUT-PUT	-	RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE OUTPUT
1	0	1	IN-PUT	-	RECURSIVE MODE, TRANSFER SYNCHRONOUS MODE INPUT

0:LOW LEVEL 1:HIGH LEVEL


23 RM
22 APM
1 TR0/ADD0
2 TR1/ADD1
3 TSM/ADD2
37 TR2/ADD3
TRANSFER CONTROL
27 DIN0
26 DIN1
25 DIN2
24 DIN3
13 WE
17 CKW0
INPUT BUFF. (60x4 BITS)
D-RAM (960 x 306 x 4 BITS)
16 HCLR0
14 VCLR0
15 INC0
H.V W ADDRESS COUNTER
H.V R ADDRESS COUNTER 1
HCLR1 12
VCLR1 10
INC1 11
CKR1 4
OE1 9
OUTPUT BUFF. 1 (60x4 BITS)
DO10 5
DO11 6
DO12 7
DO13 8
OUTPUT BUFF. 2 (60x4 BITS)
DO20 35
DO21 34
DO22 33
DO23 32
OE2 31
CKR2 36
H.V R ADDRESS COUNTER 2
HCLR2 28
VCLR2 30
INC2 29

CXP80624 (SONY) FLAT PACKAGE
CXP80P624 (SONY) FLAT PACKAGE

C-MOS 8-BIT 1-CHIP MICROCOMPUTER
– TOP VIEW –


NC
VDD (+5V)
GND
AVDD (+5V)
AGND
GND

INPUT

AN0 – AN11	: A-D CONVERTOR'S ANALOG INPUTS
AVREF	: A-D CONVERTOR'S REFERENCE VOLTAGE INPUT
CFG	: CAPSTAN FG INPUT
CS0	: SERIAL INTERFACE CHANNLE 0 SELECT INPUT
DPG,DFG	: DURM PG AND FG INPUTS
EC	: EVENT CONTROL INPUT FOR TIMER/COUNTER
EXI0,EXI1	: FRC CAPTURE UNIT'S EXTERNAL INPUTS
EXTAL	: CRYSTAL CONNECTION OR EXTERNAL CLOCK INPUT FOR SYSTEM CLOCK GENERATOR
INT0 – INT2	: INTERRUPT REQUEST INPUTS (FALLING EDGE ACTIVE)
PBCTL	: PLAYBACK CTL PULSE INPUT
PCK	: PRESCALER'S EXTERNAL CLOCK INPUT
PE0,PE1	: INPUTS OF PORT E (PE2 – PE7 ; OUTPUTS)
PF0 – PF3	: INPUTS OF PORT F (PF4 – PF7 ; OUTPUTS)
PG0 – PG7	: INPUTS OF PORT G
PI0	: INPUT OF PORT I (PI1 – PI7 ; INPUTS/OUTPUTS)
PK0	: INPUT OF PORT K
SI0,SI1	: SERIAL DATA INPUTS (CHANNLE 0 AND CHANNLE 1)
SYNC0,SYNC1	: COMPOSITE SYNC SIGNAL INPUTS

OUTPUT

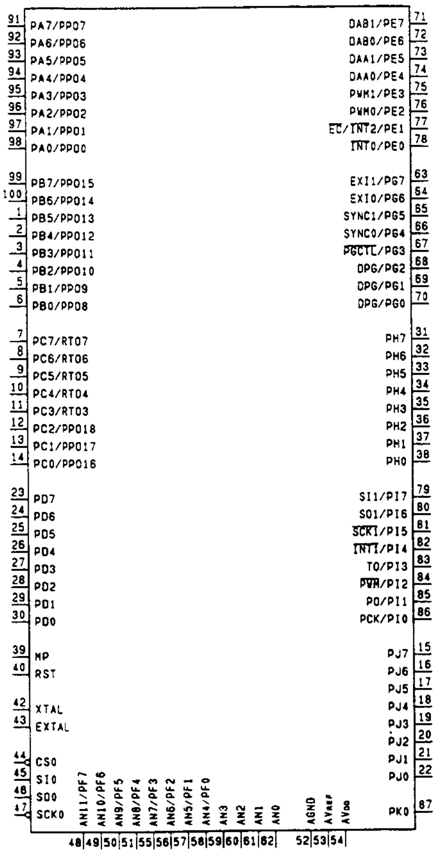
DAA0,DAB0	: DA GATE PULSE OUTPUTS (12 BITS PWM CHANNLE 0)
DAA1,DAB1	: DA GATE PULSE OUTPUTS (12 BITS PWM CHANNLE 1)
MP	: MICROPROCESSOR MODE INPUT
PA0 – PA7	: OUTPUTS OF PORT A
PB0 – PB7	: OUTPUTS OF PORT B
PE2 – PE7	: OUTPUTS OF PORT E (PE0, PE1 ; INPUTS)
PF4 – PF7	: OUTPUTS OF PORT F (PF0 – PF3 ; INPUTS)
PH0 – PH7	: OUTPUTS OF PORT H (N-CH OPEN DRAIN OUTPUTS)
PPO0 – PPO18	: PROGRAMMABLE PATTERN GENERATOR OUTPUS
PO	: PRESCALER OUTPUT
PWM	: PULSE WIDTH MODULATION OUTPUT
PWM0,PWM1	: 12 BITS PULSE WIDTH MODULATION OUTPUTS (CHANNLE 0 AND CHANNLE 1)
RTO3 – RTO7	: REALTIME PULSE GENERATOR OUTPUTS
SO0,SO1	: SERIAL DATA OUTPUTS (CHANNLE 0 AND CHANNLE 1)
TO	: TIMER/COUNTER OUTPUT (DUTY 50%)
XTAL	: CRYSTAL CONNECTION

INPUT/OUTPUT

PC0 – PC7	: INPUTS/OUTPUTS OF PROT C (BIT PROGRAMMABLE)
PD0 – PD7	: INPUTS/OUTPUTS OF PROT D (4 BITS PROGRAMMABLE)
PI1 – PI7	: INPUTS/OUTPUTS OF PROT I (BIT PROGRAMMABLE, PI0 ; INPUT)
PJ0 – PJ7	: INPUTS/OUTPUTS OF PROT J (BIT PROGRAMMABLE)
RST	: SYSTEM RESET INPUT AND POWER ON RESET OUTPUT
SCK0,SCK1	: SERIAL CLOCK INPUTS/OUTPUTS (CHANNLE 0 AND CHANNLE 1)

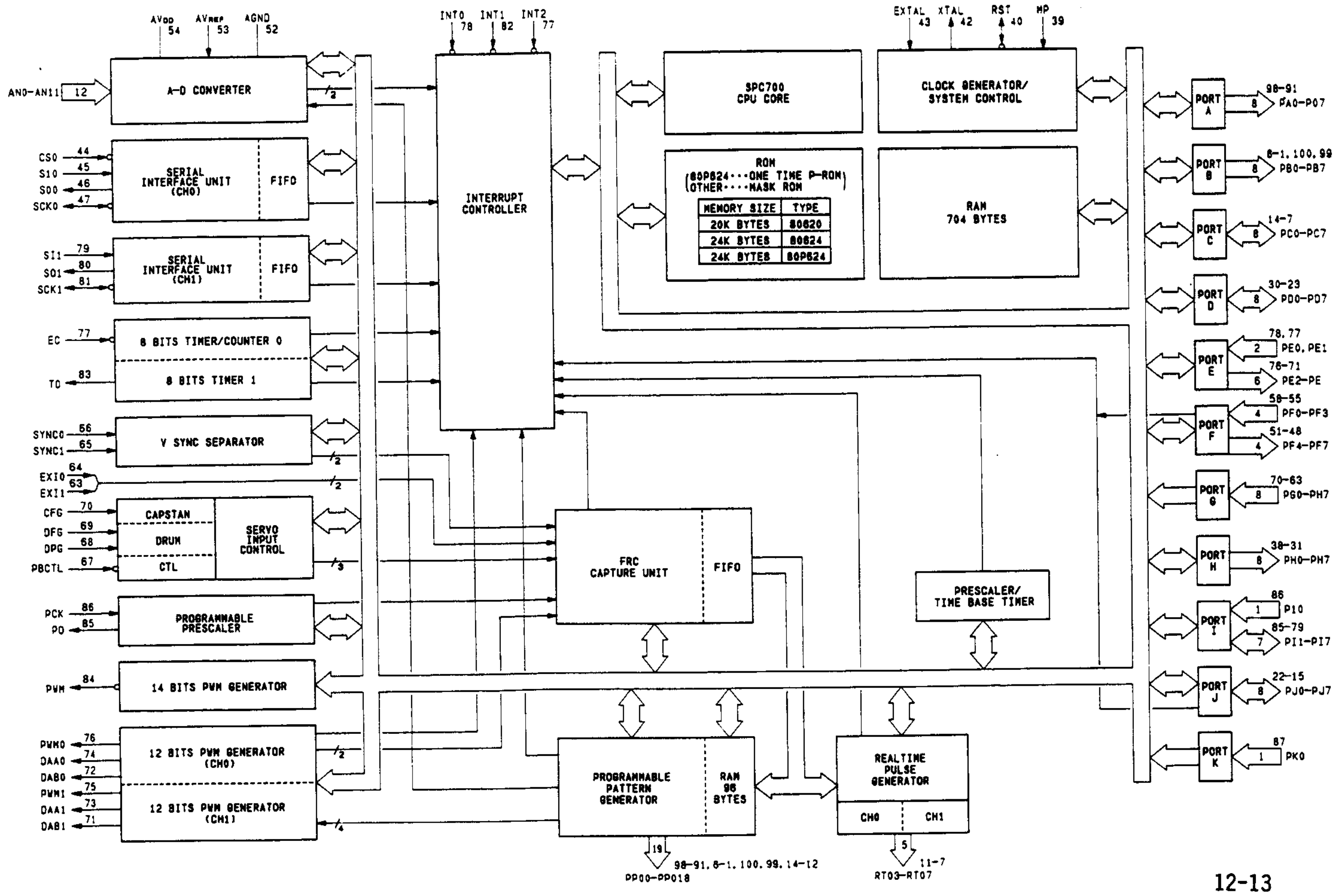
OTHER

AGND	: A-D CONVERTOR'S GROUND
AVDD (+5V)	: A-D CONVERTOR'S VDD


PA7/PPO7
PA6/PPO6
PA5/PPO5
PA4/PPO4
PA3/PPO3
PA2/PPO2
PA1/PPO1
PA0/PPO0
PB7/PPO15
PB6/PPO14
PB5/PPO13
PB4/PPO12
PB3/PPO11
PB2/PPO10
PB1/PPO9
PB0/PPO8
PC7/RTO7
PC6/RTO6
PC5/RTO5
PC4/RTO4
PC3/RTO3
PC2/PPO18
PC1/PPO17
PC0/PPO16
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
MP
RST
XTAL
EXTAL
CS0
SI0
SO0
SCK0
DAB1/PE7
DAB0/PE6
DAA1/PE5
DAA0/PE4
PWM1/PE3
PWM0/PE2
EC/INT2/PE1
INT0/PE0
EXI1/PG7
EXI0/PG6
SYNC1/PG5
SYNC0/PG4
PBCTL/PG3
DPG/PG2
DFG/PG1
CFG/PG0
PH7
PH6
PH5
PH4
PH3
PH2
PH1
PH0
SI1/PI7
SO1/PI6
SCK1/PI5
INT1/PI4
TO/PI3
PWM/PI2
PO/PI1
PCK/PI0
PJ7
PJ6
PJ5
PJ4
PJ3
PJ2
PJ1
PJ0
PK0
AN11/PF7
AN10/PF6
AN9/PF5
AN8/PF4
AN7/PF3
AN6/PF2
AN5/PF1
AN4/PF0
AN3
AN2
AN1
AN0
AGND
AVREF
AVDD

(VDD = AVDD = + 5V)

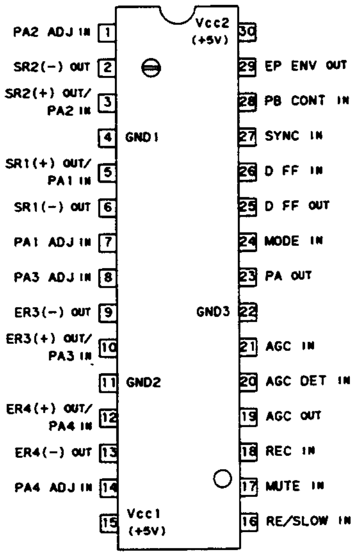
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	O	PB5/PPO13	26	I/O	PD4	51	I/O	PF4/AN8	76	O	PE2/PWM0
2	O	PB4/PPO12	27	I/O	PD3	52	–	AGND	77	I	PE1/EC/INT2
3	O	PB3/PPO11	28	I/O	PD2	53	I	AVREF	78	I	PE0/INT0
4	O	PB2/PPO10	29	I/O	PD1	54	–	AVDD	79	I/O	PI7/SI1
5	O	PB1/PPO9	30	I/O	PD0	55	I	PF3/AN7	80	I/O	PI6/SO1
6	O	PB0/PPO8	31	I/O	PH7	56	I	PF2/AN6	81	I/O	PI5/SCK1
7	I/O	PC7/RTO7	32	O	PH6	57	I	PF1/AN5	82	I/O	PI4/INT1
8	I/O	PC6/RTO6	33	O	PH5	58	I	PF0/AN4	83	I/O	PI3/TO
9	I/O	PC5/RTO5	34	O	PH4	59	I	AN3	84	I/O	PI2/PWM
10	I/O	PC4/RTO4	35	O	PH3	60	I	AN2	85	I/O	PI1/PO
11	I/O	PC3/RTO3	36	O	PH2	61	I	AN1	86	I	PI0/PCK
12	I/O	PC2/PPO18	37	O	PH1	62	I	AN0	87	I	PK0
13	I/O	PC1/PPO17	38	O	PH0	63	I	PG7/EXI1	88	–	GND
14	I/O	PC0/PPO16	39	O	MP	64	I	PG6/EXI0	89	–	VDD
15	I/O	PJ7	40	I/O	RST	65	I	PG5/SYNC1	90	–	NC
16	I/O	PJ6	41	–	GND	66	I	PG4/SYNC0	91	O	PA7/PPO7
17	I/O	PJ5	42	O	XTAL	67	I	PG3/PBCTL	92	O	PA6/PPO6
18	I/O	PJ4	43	I	EXTAL	68	I	PG2/DPG	93	O	PA5/PPO5
19	I/O	PJ3	44	I	CS0	69	I	PG1/DFG	94	O	PA4/PPO4
20	I/O	PJ2	45	I	SI0	70	I	PG0/CFG	95	O	PA3/PPO3
21	I/O	PJ1	46	O	SO0	71	O	PE7/DAB1	96	O	PA2/PPO2
22	I/O	PJ0	47	I/O	SCK0	72	O	PE6/DAB0	97	O	PA1/PPO1
23	I/O	PD7	48	I/O	PF7/AN11	73	O	PE5/DAA1	98	O	PA0/PPO0
24	I/O	PD6	49	I/O	PF6/AN10	74	O	PE4/DAA0	99	O	PB7/PPO15
25	I/O	PD5	50	I/O	PF5/AN9	75	O	PE3/PWM1	100	O	PB6/PPO14

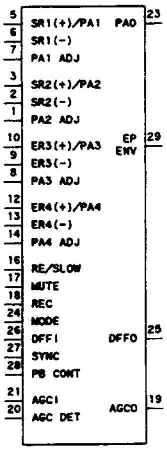

AVDD 54
AVREF 53
AGND 52
AN0–AN11
A–D CONVERTER
CS0 44
SI0 45
SO0 46
SCK0 47
SERIAL INTERFACE UNIT (CH0)
FIFO
SI1 79
SO1 80
SCK1 81
SERIAL INTERFACE UNIT (CH1)
EC 77
8 BITS TIMER/COUNTER 0
TO 83
8 BITS TIMER 1
SYNC0 66
SYNC1 65
V SYNC SEPARATOR
EXI0 64
EXI1 63
CFG 70
DFG 69
DPG 68
PBCTL 67
CAPSTAN
DRUM
CTL
SERVO INPUT CONTROL
PCK 86
PO 85
PROGRAMMABLE PRESCALER
PWM 84
14 BITS PWM GENERATOR
PWM0 76
DAA0 74
DAB0 72
PWM1 75
DAA1 73
DAB1 71
12 BITS PWM GENERATOR (CH0)
12 BITS PWM GENERATOR (CH1)
INT0 78
INT1 82
INT2 77
INTERRUPT CONTROLLER
SPC700 CPU CORE
ROM (80P824···ONE TIME P-ROM / OTHER···MASK ROM)
MEMORY SIZE | TYPE
20K BYTES | 80820
24K BYTES | 80824
24K BYTES | 80P824
EXTAL 43
XTAL 42
RST 40
MP 39
CLOCK GENERATOR/ SYSTEM CONTROL
RAM 704 BYTES
FRC CAPTURE UNIT
FIFO
PRESCALER/ TIME BASE TIMER
PROGRAMMABLE PATTERN GENERATOR
RAM 96 BYTES
REALTIME PULSE GENERATOR
CH0
CH1
19
98–91, 6–1, 100, 99, 14–12
PPO0–PPO18
5
11–7
RTO3–RTO7
PORT A
98–91
PA0–PO7
PORT B
6–1, 100, 99
PB0–PB7
PORT C
14–7
PC0–PC7
PORT D
30–23
PD0–PD7
PORT E
78, 77
PE0, PE1
76–71
PE2–PE
PORT F
58–55
PF0–PF3
51–48
PF4–PF7
PORT G
70–63
PG0–PH7
PORT H
38–31
PH0–PH7
PORT I
86
PI0
85–79
PI1–PI7
PORT J
22–15
PJ0–PJ7
PORT K
87
PK0

HA118019NT (HITACHI)

VTR PRE REC AMP

- TOP VIEW -


PA2 ADJ IN 1
SR2(−) OUT 2
SR2(+) OUT/ PA2 IN 3
4 GND1
SR1(+) OUT/ PA1 IN 5
SR1(−) OUT 6
PA1 ADJ IN 7
PA3 ADJ IN 8
ER3(−) OUT 9
ER3(+) OUT/ PA3 IN 10
11 GND2
ER4(+) OUT/ PA4 IN 12
ER4(−) OUT 13
PA4 ADJ IN 14
15 Vcc1 (+5V)
Vcc2 (+5V) 30
29 EP ENV OUT
28 PB CONT IN
27 SYNC IN
26 D FF IN
25 D FF OUT
24 MODE IN
23 PA OUT
GND3 22
21 AGC IN
20 AGC DET IN
19 AGC OUT
18 REC IN
17 MUTE IN
16 RE/SLOW IN


5 SR1(+)/PA1
6 SR1(−)
7 PA1 ADJ
3 SR2(+)/PA2
2 SR2(−)
1 PA2 ADJ
10 ER3(+)/PA3
9 ER3(−)
8 PA3 ADJ
12 ER4(+)/PA4
13 ER4(−)
14 PA4 ADJ
16 RE/SLOW
17 MUTE
18 REC
24 MODE
26 DFFI
27 SYNC
28 PB CONT
21 AGCI
20 AGC DET
PAO 23
EP ENV 29
DFFO 25
AGCO 19

INPUT
AGCI ;AGC
AGC DET ;AGC DETECT
DFFI ;DRUM FF
MODE ;MODE CONTROL (L;SP/H;EP)
MUTE ;REC MUTE CONTROL
PA1-PA4 ;PRE AMP CH1-CH4
PA1-PA4 ADJ ;PRE AMP CH1-CH4 ADJUST
PB CONT ;PB CONTROL (MANUAL/AUTO/STILL)
REC ;REC
RE/SLOW ;REC EQ/SLOW CONTROL
SYNC ;SYNC SEPARATE

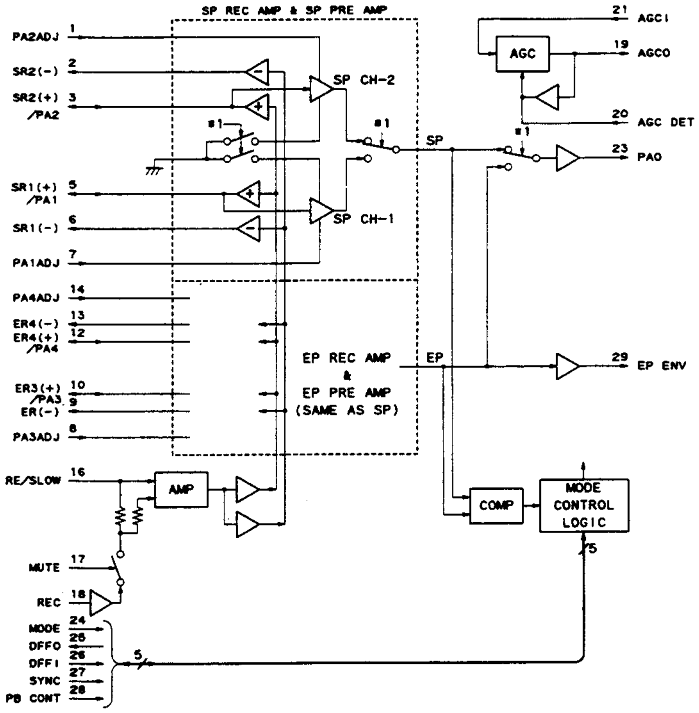
OUTPUT
AGCO ;AGC OUTPUT (PB/REC SELECT)
DFFO ;DRUM FF
EP ENV ;EP ENVELOPE
ER3(+).ER4(+) ;EP REC CH3/CH4(+)
ER3(−).ER4(−) ;EP REC CH3/CH4(−)
PAO ;PRE AMP
SR1(+).SR2(+) ;SP REC CH1/CH2(+)
SR1(−).SR2(−) ;SP REC CH1/CH2(−)

MODE CONTROL

SYMBOL / MODE	DFF1	MODE	PB CONT	RE/ SLOW	DFFO	PAO
SP PB	0	0	1	OPEN	0	CH1
	1	0	1	OPEN	1	CH2
EP PB	0	1	1	OPEN	1	CH4
	1	1	1	OPEN	0	CH3
AUTO	0	−	MIDDLE	OPEN		
	1	−	MIDDLE	OPEN		
SP STILL	0	0	0	OPEN	1	CH4
	1	0	0	OPEN	1	CH2
EP STILL	0	1	0	OPEN	0	CH1
	1	1	0	OPEN	0	CH3
SP SLOW	0	0	0	0	0	CH1
	1	0	0	0	1	CH2
EP SLOW	0	1	0	0	1	CH4
	1	1	0	0	0	CH3

0	CH1
1	CH4
1	CH2
0	CH3

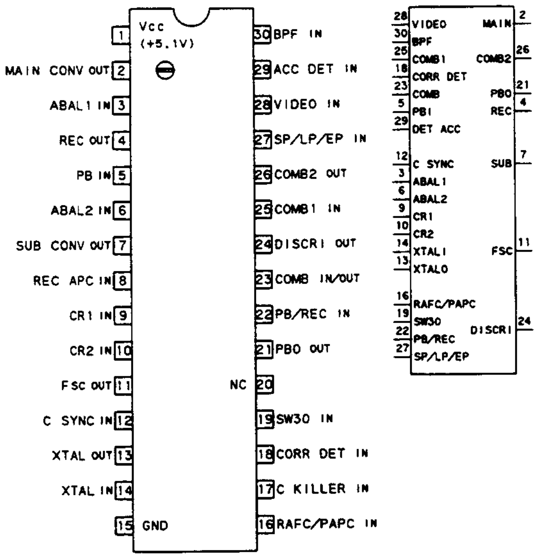
1;HIGH LEVEL
0;LOW LEVEL


SP REC AMP & SP PRE AMP
PA2ADJ 1
SR2(−) 2
SR2(+) 3 /PA2
SP CH-2
*1
*1
SP
SR1(+) 5 /PA1
SR1(−) 6
SP CH-1
PA1ADJ 7
PA4ADJ 14
ER4(−) 13
ER4(+) 12 /PA4
EP REC AMP & EP PRE AMP (SAME AS SP)
EP
ER3(+) 10 /PA3
ER(−) 9
PA3ADJ 8
RE/SLOW 16
AMP
MUTE 17
REC 18
MODE 24
DFFO 25
DFFI 26
SYNC 27
PB CONT 28
5
AGC
21 AGCI
19 AGCO
20 AGC DET
*1
23 PAO
29 EP ENV
COMP
MODE CONTROL LOGIC
5

HA118027NT (HITACHI)

CHROMA SIGNAL PROCESSOR FOR VHS

- TOP VIEW -

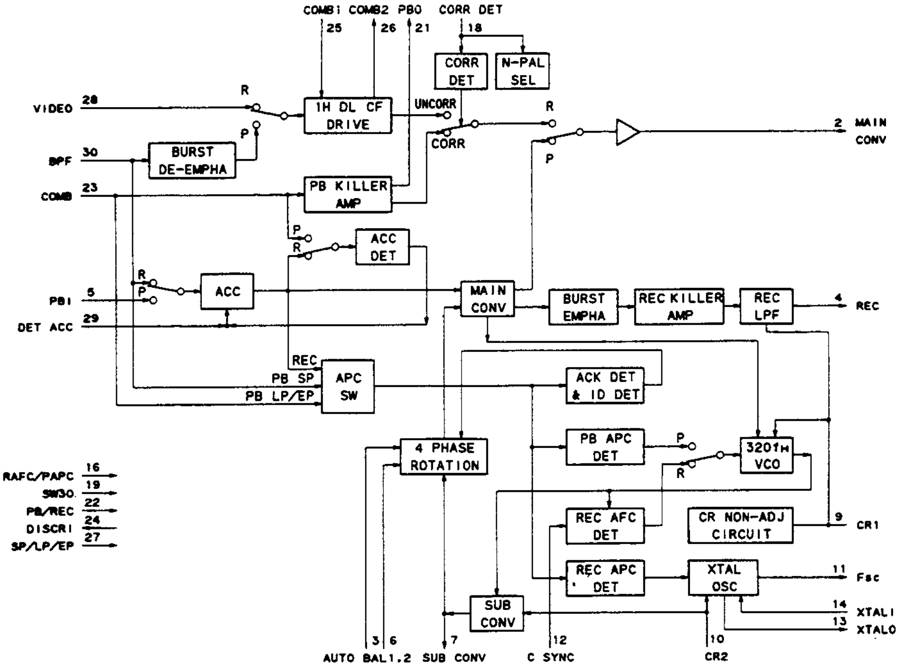

1 Vcc (+5.1V)
MAIN CONV OUT 2
ABAL1 IN 3
REC OUT 4
PB IN 5
ABAL2 IN 6
SUB CONV OUT 7
REC APC IN 8
CR1 IN 9
CR2 IN 10
Fsc OUT 11
C SYNC IN 12
XTAL OUT 13
XTAL IN 14
15 GND
30 BPF IN
29 ACC DET IN
28 VIDEO IN
27 SP/LP/EP IN
26 COMB2 OUT
25 COMB1 IN
24 DISCRI OUT
23 COMB IN/OUT
22 PB/REC IN
21 PBO OUT
NC 20
19 SW30 IN
18 CORR DET IN
17 C KILLER IN
16 RAFC/PAPC IN
28 VIDEO
30 BPF
25 COMB1
18 CORR DET
23 COMB
5 PBI
29 DET ACC
12 C SYNC
3 ABAL1
6 ABAL2
9 CR1
10 CR2
14 XTALI
13 XTALO
16 RAFC/PAPC
19 SW30
22 PB/REC
27 SP/LP/EP
MAIN 2
COMB2 26
PBO 21
REC 4
SUB 7
FSC 11
DISCRI 24

INPUT

ABAL1	;DE-COUPLING CAPACITOR PIN for AUTO BALANCE
ABAL2	;AUTO BALANCE DETECT
ACC DET	;ACC DETECT
BPF	;REC ACC/PB BURST DE-EMPHASIS
CR1	;CAPACITOR AND RESISTOR NOT-ADJUST DETECT
CR2	;CRYSTAL OSC (VARIABLE CAPACITANCE DIORE for 4 PHASE GENERATOR BLOCK)
C KILLER	;COLOR KILLER DETECT
COMB	;PB COLOR KILLER AMP
COMB1	;COMB DRIVE
CORR DET	;UNCORRELATED SIGNAL/MANUAL UNCORRELATED MODE SELECT /N·PAL MODE SELECT
CSYNC	;COMPOSITE SYNC
PBI	;PB ACC
PB/REC	;H;PB/L;REC SELECT
RAFC/PAPC	;REC AFC/PB APC DETECT
REC APC	;REC APC DETECT
SP/LP/EP	;SP/LP/EP SELECT CONTROL (SP:0-0.8V/LP:1.2-3.3V/EP:3.8-5.1V)
SUB CONV	;421MHz TANK CIRCUIT
SW30	;SWITCHING PULSE (L;CH-2/H;CH-1)
VIDEO	;REC VIDEO
XTAL	;CRYSTAL OSC

OUTPUT

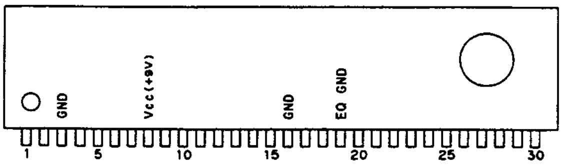
COMB	;REC COLOR COMB
COMB2	;PB BURST DE-EMPHASIS
DISCRI	;PB DISCRIMINATE
Fsc	;Fsc
MAIN	;REC COLOR COMB/PB MAIN CONVERTER
PBO	;PB COLOR KILLER AMP/REC COMB
REC	;REC LPF COLOR SIGNAL OUT/PB ID STOP CONTROL
XTAL	;CRYSTAL OSC


COMB1
COMB2
PBO
CORR DET
25
26
21
18
CORR DET
N-PAL SEL
VIDEO 28
R
P
1H DL CF DRIVE
UNCORR
CORR
R
P
2 MAIN CONV
BPF 30
BURST DE-EMPHA
COMB 23
PB KILLER AMP
P
R
ACC DET
PBI 5
DET ACC 29
R
P
ACC
MAIN CONV
BURST EMPHA
REC KILLER AMP
REC LPF
4 REC
REC
PB SP
PB LP/EP
APC SW
ACK DET & ID DET
4 PHASE ROTATION
PB APC DET
P
R
3201H VCO
REC AFC DET
CR NON-ADJ CIRCUIT
9 CR1
REC APC DET
XTAL OSC
11 Fsc
SUB CONV
14 XTALI
13 XTALO
RAFC/PAPC 16
SW30 19
PB/REC 22
DISCRI 24
SP/LP/EP 27
3
6
AUTO BAL1.2
7 SUB CONV
12 C SYNC
10 CR2

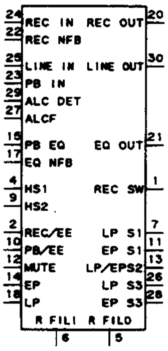
LA7297 (SANYO)

AUDIO SIGNAL REC/PB PROCESSOR

- SIDE VIEW -

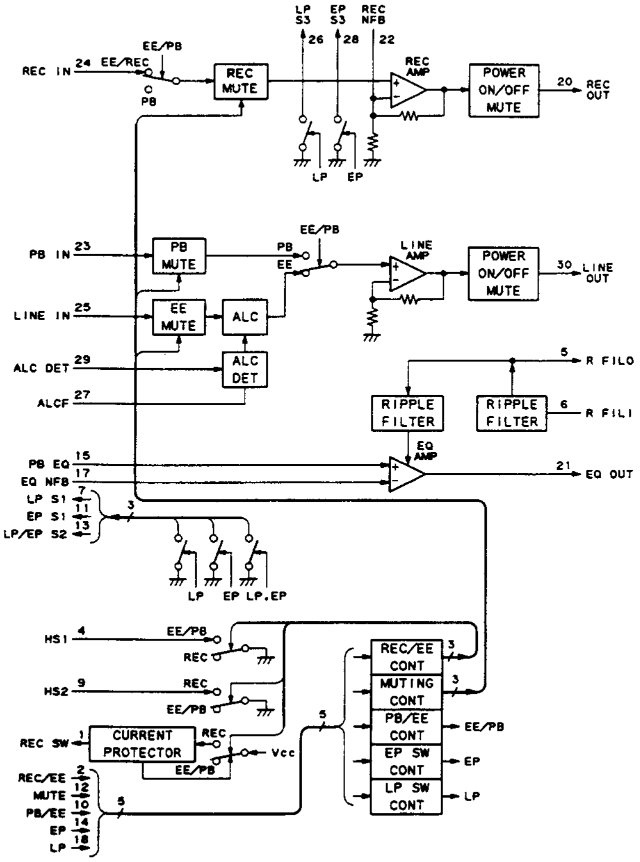

GND
Vcc(+9V)
GND
EQ GND
1
5
10
15
20
25
30

PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL
1	O	REC SW	16	—	GND
2	I	REC/EE	17	I	EQ NFB
3	—	GND	18	I	LP
4	I	HS1	19	—	EQ GND
5	O	R FILO	20	O	REC OUT
6	I	R FILI	21	O	EQ OUT
7	O	LP S1	22	I	REC NFB
8	—	Vcc	23	I	PB IN
9	I	HS2	24	I	REC IN
10	I	PB/EE	25	I	LINE IN
11	O	EP S1	26	O	LP S3
12	I	MUTE	27	—	ALCF
13	O	LP/EP S2	28	O	EP S3
14	I	EP	29	I	ALC DET
15	I	PB EQ	30	O	LINE OUT


24 REC IN
22 REC NFB
25 LINE IN
23 PB IN
29 ALC DET
27 ALCF
15 PB EQ
17 EQ NFB
4 HS1
9 HS2
2 REC/EE
10 PB/EE
12 MUTE
14 EP
18 LP
REC OUT 20
LINE OUT 30
EQ OUT 21
REC SW 1
LP S1 7
EP S1 11
LP/EPS2 13
LP S3 26
EP S3 28
R FILI 6
R FILO 5

INPUT
ALC DET ;AUTO LIMITER CONTROL DETECTOR
ALCF ;AUTO LIMITER CONTROL FILTER
EP ;EP SWITCH CONTROL
EQ NFB ;PB EQUALIZED NEGATIVE FEEDBACK
HS1,2 ;HEAD SWITCH 1,2
LP ;LP SWITCH CONTROL
LINE IN ;AUDIO LINE
MUTE ;MUTE SWITCH CONTROL
PB/EE ;PB/EE SWITCH CONTROL
PB EQ ;PB EQUALIZED
PB IN ;AUDIO PB LEVEL
REC/EE ;REC/EE SWITCH CONTROL
REC IN ;AUDIO REC LEVEL
REC NFB ;AUDIO REC NEGATIVE FEEDBACK
R FILI ;RIPPLE FILTER

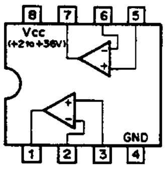
OUTPUT
EP S1-3 ;EP SWITCH
EQ OUT ;PB EQUALIZED
LINE OUT ;AUDIO LINE
LP S1-3 ;LP SWITCH
REC OUT ;AUDIO REC LEVEL
REC SW ;REC HEAD VOLTAGE CONTROL SWITCH
R FILO ;RIPPLE FILTER


LP S3 26
EP S3 28
REC NFB 22
REC IN 24
EE/REC
EE/PB
PB
REC MUTE
REC AMP
POWER ON/OFF MUTE
20 REC OUT
LP
EP
PB IN 23
PB MUTE
EE/PB
PB
EE
LINE AMP
POWER ON/OFF MUTE
30 LINE OUT
LINE IN 25
EE MUTE
ALC
ALC DET 29
ALC DET
ALCF 27
RIPPLE FILTER
RIPPLE FILTER
5 R FILO
6 R FILI
EQ AMP
PB EQ 15
EQ NFB 17
21 EQ OUT
LP S1 7
EP S1 11
LP/EP S2 13
3
LP
EP
LP.EP
HS1 4
EE/PB
REC
HS2 9
REC
EE/PB
REC SW 1
CURRENT PROTECTOR
REC
EE/PB
Vcc
REC/EE 2
MUTE 12
PB/EE 10
EP 14
LP 18
5
REC/EE CONT
MUTING CONT
PB/EE CONT
EP SW CONT
LP SW CONT
EE/PB
EP
LP

LM2903DQ (RAYTHEON)
LM2903M (RAYTHEON) FLAT PACKAGE
NJM2903D (JRC)
NJM2903M (JRC) FLAT PACKAGE

DUAL VOLTAGE COMPARATORS

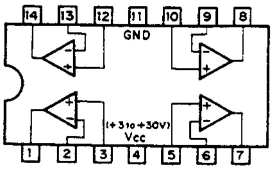
- TOP VIEW -


8
7
6
5
Vcc
(+2to+36V)
GND
1
2
3
4

LM324N (TI)

QUAD OPERATIOAL AMPLIFIERS

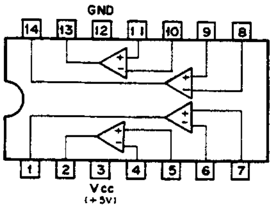
- TOP VIEW -


14
13
12
11
10
9
8
GND
(+3to+30V)
Vcc
1
2
3
4
5
6
7

LM339N (TI)

QUAD COMPARATORS

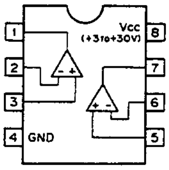
- TOP VIEW -


GND
14
13
12
11
10
9
8
1
2
3
4
5
6
7
Vcc
(+5V)

LM358P (TI)
UPC358C (NEC)

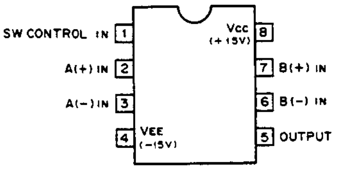
DUAL OPERATIONAL AMPLIFIERS

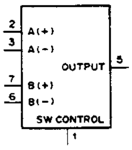
- TOP VIEW -

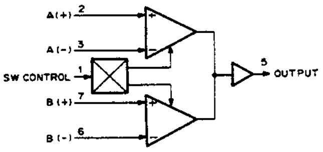

1
2
3
4
GND
Vcc
(+3to+30V)
8
7
6
5

M5201P (MITSUBISHI)

DUAL OPERATIONAL AMPLIFIERS WITH SWITCHED OUTPUT
- TOP VIEW -

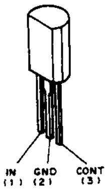

SW CONTROL IN 1
A(+) IN 2
A(-) IN 3
4 VEE (-15V)
Vcc (+15V) 8
7 B(+) IN
6 B(-) IN
5 OUTPUT

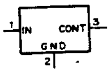

2 A(+)
3 A(-)
7 B(+)
6 B(-)
OUTPUT 5
SW CONTROL
1


A(+) 2
A(-) 3
SW CONTROL 1
B(+) 7
B(-) 6
5 OUTPUT

M5237L (MITSUBISHI)

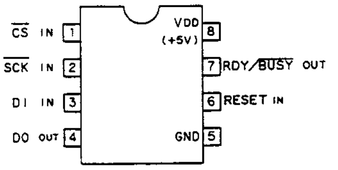
ADJUSTABLE VOLTAGE REGULATOR

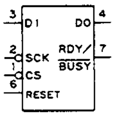

IN (1)
GND (2)
CONT (3)

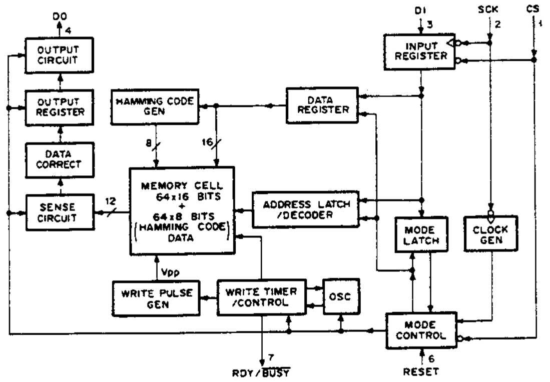

1 IN
CONT 3
GND
2

M6M80011AP (MITSUBISHI)

C-MOS 1k (64x16) BITS ELECTRICALLY ERASABLE PROM
- TOP VIEW -


CS IN 1
SCK IN 2
DI IN 3
DO OUT 4
VDD (+5V) 8
7 RDY/BUSY OUT
6 RESET IN
GND 5

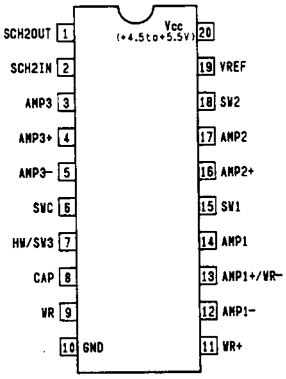

3 DI
DO 4
2 SCK
CS
RDY/BUSY 7
6 RESET

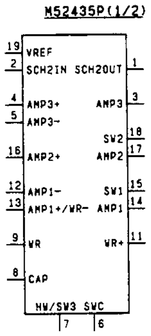

DO 4
OUTPUT CIRCUIT
OUTPUT REGISTER
DATA CORRECT
SENSE CIRCUIT
12
HAMMING CODE GEN
8
16
MEMORY CELL 64x16 BITS + 64x8 BITS (HAMMING CODE) DATA
VDD
DATA REGISTER
ADDRESS LATCH /DECODER
DI 3
SCK 2
CS 1
INPUT REGISTER
MODE LATCH
CLOCK GEN
WRITE PULSE GEN
WRITE TIMER /CONTROL
OSC
MODE CONTROL
7 RDY/BUSY
6 RESET

CS : CHIP SELECT INPUT
DI : DATA INPUT
DO : DATA OUTPUT
RDY/BUSY : BUSY OUTPUT
RESET : RESET INPUT
SCK : CLOCK INPUT

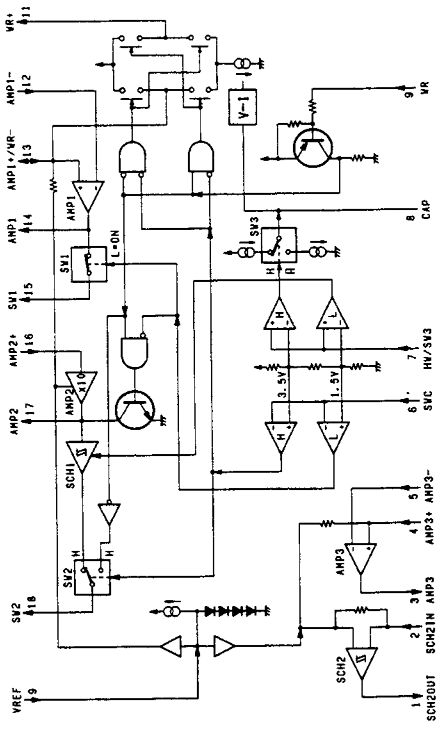
M52435P (MITSUBISHI)

VTR DIGITAL SERVO INTERFACE
- TOP VIEW -


SCH2OUT 1
SCH2IN 2
AMP3 3
AMP3+ 4
AMP3- 5
SWC 6
HW/SW3 7
CAP 8
WR 9
10 GND
Vcc (+4.5to+5.5V) 20
19 VREF
18 SW2
17 AMP2
16 AMP2+
15 SW1
14 AMP1
13 AMP1+/WR-
12 AMP1-
11 WR+

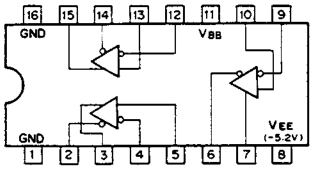

M52435P(1/2)
19 VREF
2 SCH2IN SCH2OUT 1
4 AMP3+ AMP3 3
5 AMP3-
SW2 18
16 AMP2+ AMP2 17
12 AMP1- SW1 15
13 AMP1+/WR- AMP1 14
9 WR WR+ 11
8 CAP
HW/SW3 SWC
7 6

AMP1 : AMP.1 OUTPUT
AMP1+/WR- : AMP.1 NON-INVERTING INPUT/NEGATIVE WRITE OUTPUT
AMP1- : AMP.1 INVERTING INPUT
AMP2 : AMP.2 OUTPUT (x10)
AMP2+ : AMP.2 INPUT
AMP3 : AMP.3 OUTPUT
AMP3+ : AMP.3 NON-INVERTING INPUT
AMP3- : AMP.3 INVERTING INPUT
CAP : CAPASITOR CONNECTING TERMINAL FOR V-I CONVERTER
HW/SW3 : HYSTERESIS WIDTH SELECT INPUT FOR SCHMITT 1
/ TRIGGER INPUT FOR SWITCH 3(TRAPEZOID WAVE GENERATE)
SCH2IN : SCHMITT 2 INPUT
SCH2OUT : SCHMITT 2 OUTPUT
SW1 : SWITCH 1 OUTPUT
SW2 : SWITCH 2 OUTPUT
SWC : SWCTHES 1 AND 2 CONTROL INPUT (REC/PLAYBAK SWICTHOVER)
VREF : REFERANCE VOLTAGE INPUT
WR : WRITE SIGNAL INPUT
WR+ : POSITIVE WRITE OUTPUT


WR+ 11
AMP1- 12
AMP1+/WR- 13
AMP1 14
SW1 15
AMP2+ 16
AMP2 17
SW2 18
VREF 9
WR 9
CAP 8
HW/SW3 7
SWC 6
AMP3- 5
AMP3+ 4
AMP3 3
SCH2IN 2
SCH2OUT 1
V-I
AMP1
SW1
L=ON
SW3
H
L
AMP2
x10
SCH1
SW2
3.5V
1.5V
AMP3
SCH2

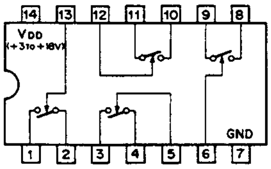
MC10H116M (MOTOROLA) FLAT PACKAGE

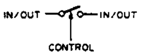
ECL TRIPLE DIFFERENTIAL OR/NOR LINE RECEIVERS
- TOP VIEW -


16
15
14
13
12
11
10
9
GND
VBB
VEE
(-5.2V)
GND
1
2
3
4
5
6
7
8

MC14066BCP (MOTOROLA)

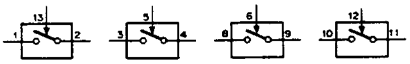
C-MOS QUAD BILATERAL ANALOG SWITCH
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3to+18V)
GND
1
2
3
4
5
6
7


IN/OUT
IN/OUT
CONTROL

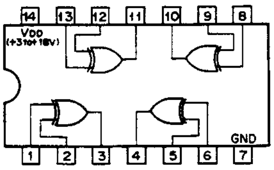
CONTROL	SWITCH
0	OFF
1	ON

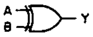
0; LOW LEVEL
1; HIGH LEVEL


13
1
2
5
3
4
6
8
9
12
10
11

MC14070BCP (MOTOROLA)

C-MOS QUAD EXCLUSIVE OR GATES
- TOP VIEW -


14
13
12
11
10
9
8
VDD
(+3to+18V)
GND
1
2
3
4
5
6
7



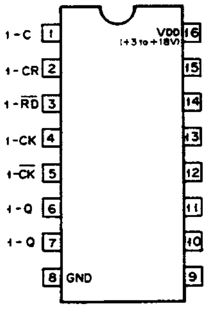
$Y = \bar{A} \cdot B + A \cdot \bar{B}$

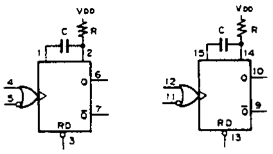
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

MC14538BCP (MOTOROLA)
MC14538BF (MOTOROLA) FLAT PACKAGE

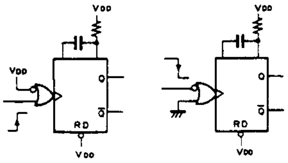
C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS
- TOP VIEW -


1-C 1
1-CR 2
1-RD 3
1-CK 4
1-CK 5
1-Q 6
1-Q 7
8 GND
VDD 16
(+3to+18V)
15 2-C
14 2-CR
13 2-RD
12 2-CK
11 2-CK
10 2-Q
9 2-Q

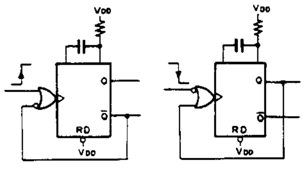

VDD
C
R
1
2
4
5
6
7
Q
Q
RD
3
VDD
C
R
15
14
12
11
10
9
Q
Q
RD
13

OUTPUT PULSE WIDTH = C·R

RETRIGGERABLE M.M.V

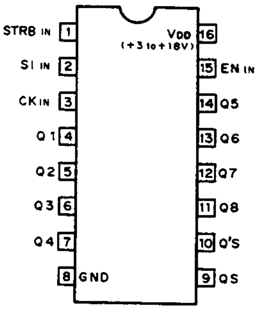

VDD
VDD
Q
Q
RD
VDD
VDD
Q
Q
RD
VDD

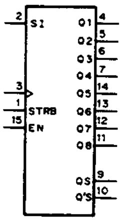
NON-RETRIGGERABLE M.M.V


VDD
Q
Q
RD
VDD
VDD
Q
Q
RD
VDD

MC14094BCP (MOTOROLA)
TC4094BP (TOSHIBA)

C-MOS 8-STAGE SHIFT-AND-STORE BUS REGISTER
- TOP VIEW -


STRB IN 1
SI IN 2
CK IN 3
Q1 4
Q2 5
Q3 6
Q4 7
8 GND
VDD 16
(+3to+18V)
15 EN IN
14 Q5
13 Q6
12 Q7
11 Q8
10 Q'S
9 QS


2
SI
3
1
STRB
15
EN
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
QS
Q'S
4
5
6
7
14
13
12
11
9
10

SI : SERIAL DATA INPUT
CK : CLOCK INPUT
STRB : STROBE INPUT
EN : OUTPUT ENABLE INPUT
Q1 ~ Q8 : PARALLEL DATA OUTPUTS
QS, Q'S : SERIAL DATA OUTPUTS

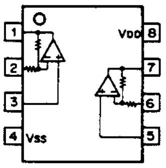
INPUTS				PARALLEL OUT		SERIAL OUT	
CK	EN	STRB	SI	Q1	Qn	QS	Q'S
↑	0	X	X	HI-Z	HI-Z	Q7	NC
↓	0	X	X	HI-Z	HI-Z	NC	Q7
↑	1	0	X	NC	NC	Q7	NC
↑	1	1	0	0	Qn-1	Q7	NC
↑	1	1	1	1	Qn-1	Q7	NC
↓	1	1	1	NC	NC	NC	Q7

1; HIGH
0; LOW
X; DON'T CARE

HI-Z; HIGH IMPEDANCE
NC ; NO CHANGE

MC14576AF (MOTOROLA) FLAT PACKAGE
MC14576BF (MOTOROLA) FLAT PACKAGE

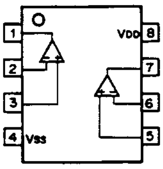
C-MOS DUAL VIDEO AMPLIFIERS
- TOP VIEW -


1
2
3
4
VSS
VDD
8
7
6
5

$\Sigma V_{DD} + |V_{SS}| = +5V$ to $+12V$

MC14577AF (MOTOROLA) FLAT PACKAGE
MC14577BF (MOTOROLA) FLAT PACKAGE

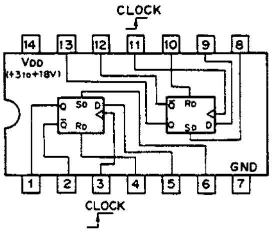
C-MOS DUAL VIDEO AMPLIFIERS
- TOP VIEW -


1
2
3
4
VSS
VDD
8
7
6
5

$\Sigma V_{DD} + |V_{SS}| = +5V$ to $+12V$

HD14013BP (HITACHI)
MC14013BCP (MOTOROLA)

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
– TOP VIEW –


CLOCK
14
13
12
11
10
9
8
VDD (+3 to +18V)
SD
RD
D
Q
Q̄
GND
1
2
3
4
5
6
7
CLOCK

DIRECT R-S FLIP-FLOP

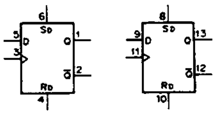
SD	RD	Q	Q̄
0	0	Qn	Q̄n
0	1	0	1
1	0	1	0
1	1	1	1

D-TYPE FLIP-FLOP

CKn	CKn+1
D	Q
0	0
1	1

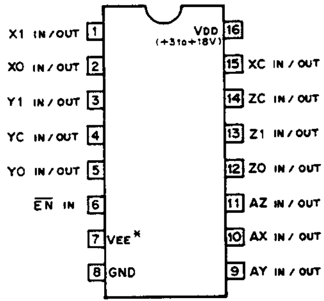
0: LOW LEVEL
1: HIGH LEVEL

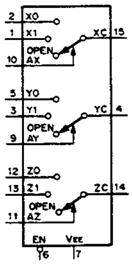
CLOCK CK; ↑
CKn; BEFORE CLOCK
CKn+1; AFTER CLOCK


6
SD
5
D
3
Q
1
Q̄
2
RD
4
8
SD
9
D
11
Q
13
Q̄
12
RD
10

HD14053BFP (HITACHI) FLAT PACKAGE
MC14053BCP (MOTOROLA)
MC14053BF (MOTOROLA) FLAT PACKAGE
UPD4053BC (NEC)

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS
– TOP VIEW –


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT


2 X0
1 X1
OPEN
10 AX
XC 15
5 Y0
3 Y1
OPEN
9 AY
YC 4
12 Z0
13 Z1
OPEN
11 AZ
ZC 14
EN
VEE
6
7

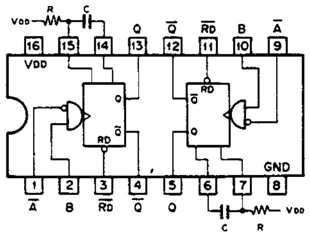
VEE*; VDD−VEE = +3 to +18V

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

MC74HC123AF (MOTOROLA) FLAT PACKAGE
TC74HC123AF (TOSHIBA) FLAT PACKAGE

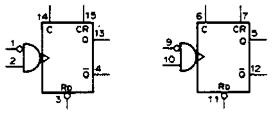
C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS
– TOP VIEW –


VDD
R
C
Q
Q̄
RD
B
Ā
16
15
14
13
12
11
10
9
VDD
RD
GND
1
2
3
4
5
6
7
8
Ā
B
RD
Q̄
Q
C
R
VDD

INPUT			OUTPUT	
RD	A	B	Q	Q̄
0	X	X	0	1
1	1	X	0	1
1	X	0	0	1
1	0	↑	⊓	⊔
1	↓	1	⊓	⊔
↑	0	1	⊓	⊔

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

OUTPUT PULSE WIDTH ≒ 0.46CR

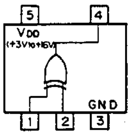

14
15
C
CR
13
1
2
Q
Q̄
4
RD
3
6
7
C
CR
5
9
10
Q
Q̄
12
RD
11

NOTE :

TYPE	VDD
TC74HCT123AF	+5V
OTHER TYPES	+2 to +6V

TC4S30F (TOSHIBA) FLAT PACKAGE

C-MOS EXCLUSIVE OR GATE
– TOP VIEW –


5
4
VDD (+3V to +6V)
GND
1
2
3

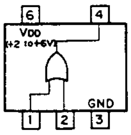
Y = Ā·B + A·B̄

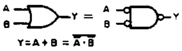
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

0; LOW LEVEL
1; HIGH LEVEL

SC7S32F (MOTOROLA) FLAT PACKAGE
TC7S32F (TOSHIBA) FLAT PACKAGE

C-MOS 2-INPUT OR GATE
– TOP VIEW –


6
4
VDD (+2 to +6V)
GND
1
2
3



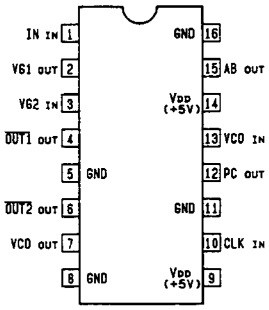
Y = A + B = $\overline{\bar{A} \cdot \bar{B}}$

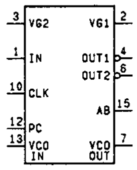
A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

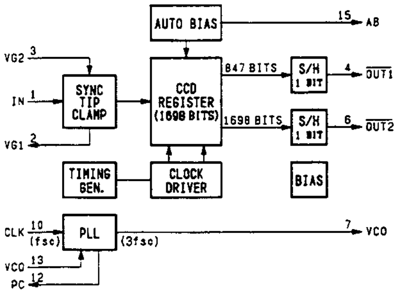
CXL1506M (SONY) FLAT PACKAGE

C-MOS CCD 1H/2H DELAY LINE FOR PAL VIDEO SYSTEM
– TOP VIEW –


IN IN 1
VG1 OUT 2
VG2 IN 3
OUT1 OUT 4
5 GND
OUT2 OUT 6
VCO OUT 7
8 GND
GND 16
15 AB OUT
VDD (+5V) 14
13 VCO IN
12 PC OUT
GND 11
10 CLK IN
VDD (+5V) 9

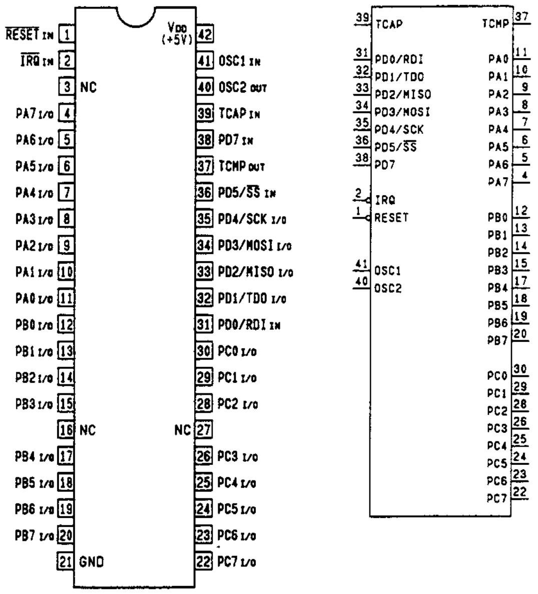

3 VG2
VG1 2
1 IN
OUT1 4
OUT2 6
10 CLK
AB 15
12 PC
13 VCO IN
VCO OUT 7

AB ; AUTO BIAS DC OUTPUT
CLK ; fsc CLOCK INPUT (4.433619 MHz)
IN ; POSITIVE SIGNAL INPUT
OUT1 ; 1H DELAY SIGNAL OUTPUT (NEGATIVE)
OUT2 ; 2H DELAY SIGNAL OUTPUT (NEGATIVE)
PC ; PHASE COMPARATER OUTPUT
VCO ; 3 • fsc CLOCK OUTPUT (PIN 7)
VCO ; VCO INPUT (PIN 13)
VG1 ; GATE BIAS 1 DC OUTPUT
VG2 ; GATE BIAS 2 DC INPUT


AUTO BIAS
15
AB
VG2 3
IN 1
VG1 2
SYNC TIP CLAMP
CCD REGISTER (1698 BITS)
847 BITS
1698 BITS
S/H 1 BIT
S/H 1 BIT
4
OUT1
6
OUT2
TIMING GEN.
CLOCK DRIVER
BIAS
CLK 10 (fsc)
PLL
(3fsc)
7
VCO
VCO 13
PC 12

MC68HC05C4 (MOTOROLA)

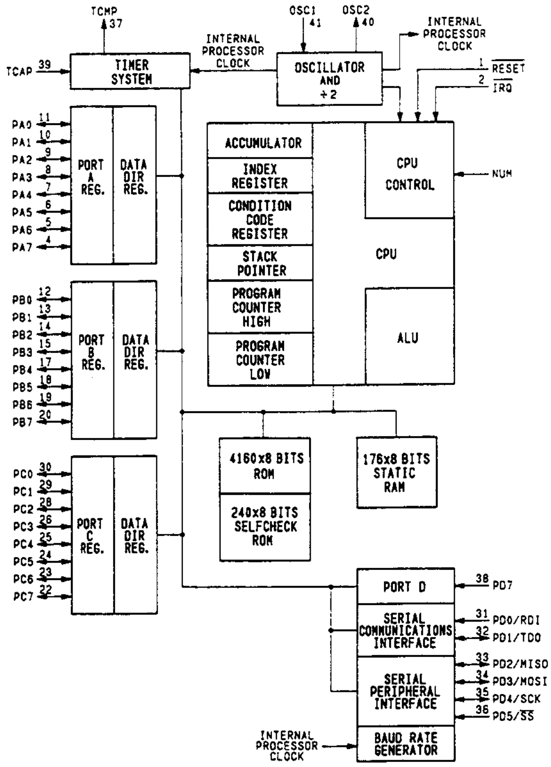
C-MOS 8-BIT MICROCONTROLLER UNIT
– TOP VIEW –


RESET IN 1
IRQ IN 2
3 NC
PA7 I/O 4
PA6 I/O 5
PA5 I/O 6
PA4 I/O 7
PA3 I/O 8
PA2 I/O 9
PA1 I/O 10
PA0 I/O 11
PB0 I/O 12
PB1 I/O 13
PB2 I/O 14
PB3 I/O 15
16 NC
PB4 I/O 17
PB5 I/O 18
PB6 I/O 19
PB7 I/O 20
21 GND
VDD (+5V) 42
41 OSC1 IN
40 OSC2 OUT
39 TCAP IN
38 PD7 IN
37 TCMP OUT
36 PD5/SS IN
35 PD4/SCK I/O
34 PD3/MOSI I/O
33 PD2/MISO I/O
32 PD1/TDO I/O
31 PD0/RDI IN
30 PC0 I/O
29 PC1 I/O
28 PC2 I/O
NC 27
26 PC3 I/O
25 PC4 I/O
24 PC5 I/O
23 PC6 I/O
22 PC7 I/O
39 TCAP
TCMP 37
31 PD0/RDI
32 PD1/TDO
33 PD2/MISO
34 PD3/MOSI
35 PD4/SCK
36 PD5/SS
38 PD7
2 IRQ
1 RESET
41 OSC1
40 OSC2
PA0 11
PA1 10
PA2 9
PA3 8
PA4 7
PA5 6
PA6 5
PA7 4
PB0 12
PB1 13
PB2 14
PB3 15
PB4 17
PB5 18
PB6 19
PB7 20
PC0 30
PC1 29
PC2 28
PC3 26
PC4 25
PC5 24
PC6 23
PC7 22

INPUT
IRQ : INTERRUPT REQUEST
OSC1 : OSCILLATOR FREQUENCY
PD0 – PD5, PD7 : PROGRAMMABLE D PORT
RDI : RECEIVING DATA
RESET : RESET
SS : SUB SELECT
TCAP : CAPTURE FEATURE FOR THE ON-CHIP PROGRAMMABLE TIMER

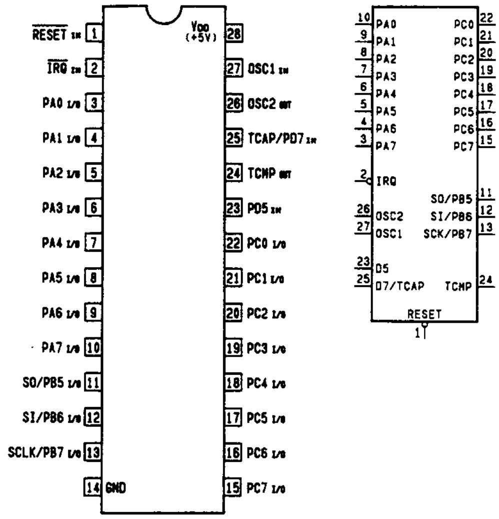
OUTPUT
OSC2 : OSCILLATOR FREQUENCY
SCK : SERIAL CLOCK
TCMP : COMPARE FEATURE OF THE ON-CHIP TIMER
TDO : TRANSMITION DATA

INPUT/OUTPUT
MISO : MASTER INPUT, SUB OUTPUT
MOSI : MASTER OUTPUT, SUB INPUT
PA0 – PA7 : PROGRAMMABLE A PORT
PB0 – PB7 : PROGRAMMABLE B PORT
PC0 – PC7 : PROGRAMMABLE C PORT


TCMP 37
TCAP 39
TIMER SYSTEM
INTERNAL PROCESSOR CLOCK
OSC1 41
OSC2 40
OSCILLATOR AND ÷2
INTERNAL PROCESSOR CLOCK
1 RESET
2 IRQ
NUM
PA0 11
PA1 10
PA2 9
PA3 8
PA4 7
PA5 6
PA6 5
PA7 4
PORT A REG.
DATA DIR REG.
PB0 12
PB1 13
PB2 14
PB3 15
PB4 17
PB5 18
PB6 19
PB7 20
PORT B REG.
DATA DIR REG.
PC0 30
PC1 29
PC2 28
PC3 26
PC4 25
PC5 24
PC6 23
PC7 22
PORT C REG.
DATA DIR REG.
ACCUMULATOR
INDEX REGISTER
CONDITION CODE REGISTER
STACK POINTER
PROGRAM COUNTER HIGH
PROGRAM COUNTER LOW
CPU CONTROL
CPU
ALU
4160x8 BITS ROM
240x8 BITS SELFCHECK ROM
176x8 BITS STATIC RAM
PORT D
38 PD7
SERIAL COMMUNICATIONS INTERFACE
31 PD0/RDI
32 PD1/TDO
SERIAL PERIPHERAL INTERFACE
33 PD2/MISO
34 PD3/MOSI
35 PD4/SCK
36 PD5/SS
INTERNAL PROCESSOR CLOCK
BAUD RATE GENERATOR

MC68HC05P7BSC402047B (MOTOROLA)

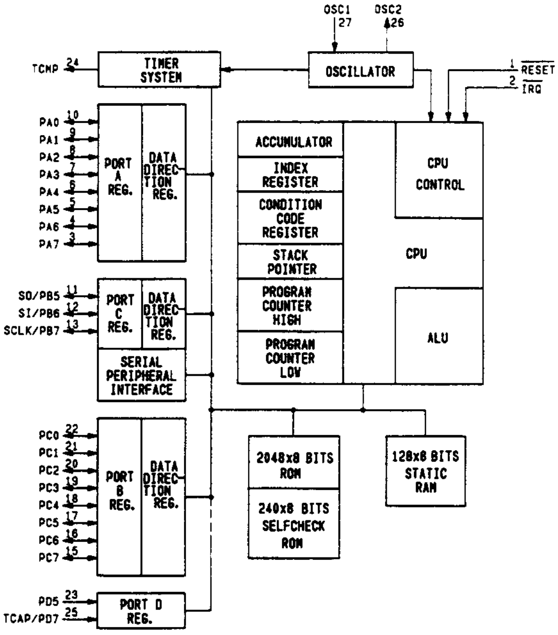
C-MOS 8-BIT 1-CHIP MICROCONTROLLER UNIT
– TOP VIEW –


RESET IN 1
IRQ IN 2
PA0 I/O 3
PA1 I/O 4
PA2 I/O 5
PA3 I/O 6
PA4 I/O 7
PA5 I/O 8
PA6 I/O 9
PA7 I/O 10
SO/PB5 I/O 11
SI/PB6 I/O 12
SCLK/PB7 I/O 13
14 GND
VDD (+5V) 28
27 OSC1 IN
26 OSC2 OUT
25 TCAP/PD7 IN
24 TCMP OUT
23 PD5 IN
22 PC0 I/O
21 PC1 I/O
20 PC2 I/O
19 PC3 I/O
18 PC4 I/O
17 PC5 I/O
16 PC6 I/O
15 PC7 I/O
10 PA0
9 PA1
8 PA2
7 PA3
6 PA4
5 PA5
4 PA6
3 PA7
2 IRQ
26 OSC2
27 OSC1
23 D5
25 D7/TCAP
PC0 22
PC1 21
PC2 20
PC3 19
PC4 18
PC5 17
PC6 16
PC7 15
SO/PB5 11
SI/PB6 12
SCK/PB7 13
TCMP 24
RESET 1

INPUT
IRQ : INTERRUPT REQUEST INPUT
OSC1 : EXTERNAL CLOCK INPUT OR CRYSTAL CONNECTION
PD3, PD5 : D PORT INPUT
RESET : RESET INPUT
SI : SERIAL DATA INPUT
TCAP : CAPTURE FEATURE INPUT FOR TIMER SYSTEM

OUTPUT
OSC2 : CRYSTAL CONNECTION
SO : SERIAL DATA OUTPUT
TCMP : COMPARE FEATURE OUTPUT OF TIMER SYSTEM

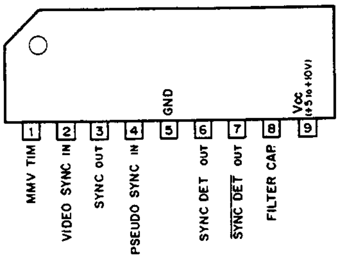
INPUT/OUTPUT
PA0–PA7 : PROGRAMMABLE A PORT
PB5–PB7 : PROGRAMMABLE B PORT
PC0–PC7 : PROGRAMMABLE C PORT
SCLK : SERIAL INTERFACE'S CLOCK INPUT/OUTPUT

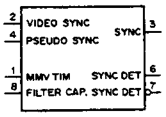

OSC1 27
OSC2 26
TCMP 24
TIMER SYSTEM
OSCILLATOR
1 RESET
2 IRQ
PA0 10
PA1 9
PA2 8
PA3 7
PA4 6
PA5 5
PA6 4
PA7 3
PORT A REG.
DATA DIRECTION REG.
SO/PB5 11
SI/PB6 12
SCLK/PB7 13
PORT C REG.
DATA DIRECTION REG.
SERIAL PERIPHERAL INTERFACE
PC0 22
PC1 21
PC2 20
PC3 19
PC4 18
PC5 17
PC6 16
PC7 15
PORT B REG.
DATA DIRECTION REG.
PD5 23
TCAP/PD7 25
PORT D REG.
ACCUMULATOR
INDEX REGISTER
CONDITION CODE REGISTER
STACK POINTER
PROGRAM COUNTER HIGH
PROGRAM COUNTER LOW
CPU CONTROL
CPU
ALU
2048x8 BITS ROM
240x8 BITS SELFCHECK ROM
128x8 BITS STATIC RAM

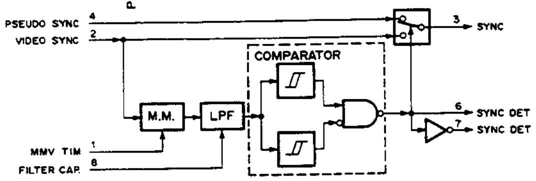
NJM2220S (JRC)

VIDEO SYNC DETECTOR

– SIDE VIEW –


GND
Vcc (+5 to +10V)
1
2
3
4
5
6
7
8
9
MMV TIM
VIDEO SYNC IN
SYNC OUT
PSEUDO SYNC IN
SYNC DET OUT
SYNC DET OUT
FILTER CAP

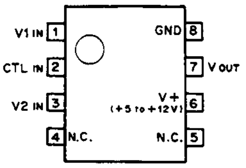

2
VIDEO SYNC
4
PSEUDO SYNC
SYNC
3
1
MMV TIM
SYNC DET
6
8
FILTER CAP.
SYNC DET
7

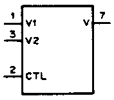

PSEUDO SYNC
4
VIDEO SYNC
2
3
SYNC
COMPARATOR
M.M.
LPF
6
SYNC DET
7
SYNC DET
MMV TIM
1
FILTER CAP.
8

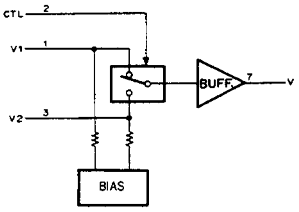
NJM2233BM (JRC) FLAT PACKAGE

2-INPUT VIDEO SIGNAL SWITCH

– TOP VIEW –


V1 IN
1
CTL IN
2
V2 IN
3
4
N.C.
GND
8
7
V OUT
V+ (+5 to +12V)
6
N.C.
5


1
V1
3
V2
2
CTL
V
7


CTL
2
V1
1
V2
3
BUFF.
7
V
BIAS

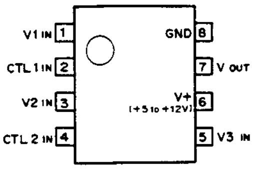
CTL	V
0	V1
1	V2

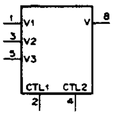
0 : LOW LEVEL
1 : HIGH LEVEL

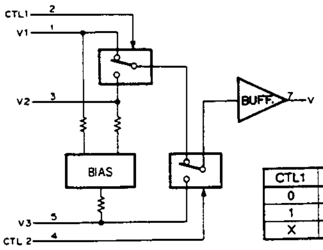
NJM2234M (JRC) FLAT PACKAGE

3-INPUT VIDEO SIGNAL SWITCH

– TOP VIEW –


V1 IN
1
CTL 1 IN
2
V2 IN
3
CTL 2 IN
4
GND
8
7
V OUT
V+ (+5 to +12V)
6
5
V3 IN


1
V1
3
V2
5
V3
V
8
CTL1
CTL2
2
4


CTL1
2
V1
1
V2
3
BUFF.
7
V
BIAS
V3
5
CTL 2
4

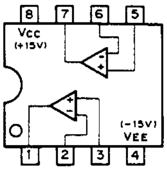
CTL1	CTL2	V
0	0	V1
1	0	V2
X	1	V3

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

NJM4560D (JRC)
NJM4560MD (JRC) FLAT PACKAGE
NJM5532D-D (JRC)
NJM5532M (JRC) FLAT PACKAGE
RC4560D (RAYTHEON)
RC5532DD (RAYTHEON)
RC5532M (RAYTHEON) FLAT PACKAGE

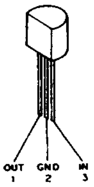
DUAL OPERATIONAL AMPLIFIER

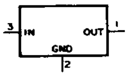
– TOP VIEW –


8
7
6
5
Vcc (+15V)
(–15V) VEE
1
2
3
4

NJM78L05A (JRC) + 5V (100mA)
NJM78L09A (JRC) + 9V (100mA)
RC78L05A (RAYTHEON) + 5V (100mA)
RC78L09A (RAYTHEON) + 9V (100mA)

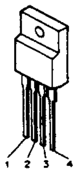
POSITIVE VOLTAGE REGULATOR

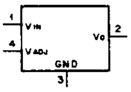

OUT
1
GND
2
IN
3


3
IN
OUT
1
GND
2

PQ05RF2V (SHARP) + 5V

POSITIVE VOLTAGE REGULATOR (2A)

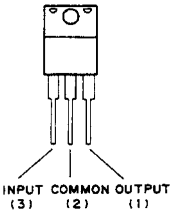


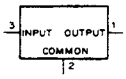

1
VIN
4
VADJ
Vo
2
GND
3

NJM7809FA (JRC) + 9V
RC7809FA (RAYTHEON) + 9V

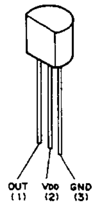
POSITIVE VOLTAGE REGULATOR

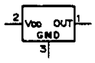
– FRONT VIEW –


INPUT
(3)
COMMON
(2)
OUTPUT
(1)

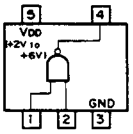

3
INPUT
OUTPUT
1
COMMON
2

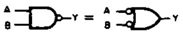
S-8054HNM (SEIKO I AND E) 4.50V – 4.70V
C-MOS VOLTAGE DETECTOR


OUT (1)
VDD (2)
GND (3)


2
VDD
OUT
1
GND
3

SC7S00F (MOTOROLA) FLAT PACKAGE
TC7S00F (TOSHIBA) FLAT PACKAGE
C-MOS 2-INPUT NAND GATE
– TOP VIEW –


5
4
VDD
+2V to +6V
GND
1
2
3

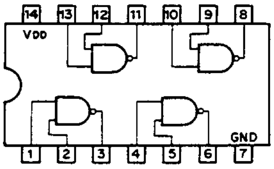


$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

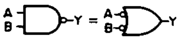
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

SN74HC00ANS (TI) FLAT PACKAGE
C-MOS QUAD 2-INPUT NAND GATES
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7

TC74HC00P



$Y = \overline{A \cdot B} = \overline{A} + \overline{B}$

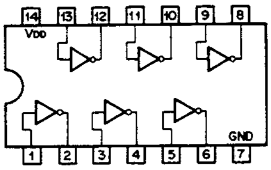
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

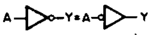
0; LOW LEVEL
1; HIGH LEVEL

NOTE :

TYPE	V_{DD}
TC74AC00 TYPE	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC04ANS (TI) FLAT PACKAGE
C-MOS HEX INVERTERS
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A}$

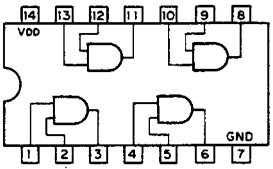
A	Y
0	1
1	0

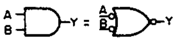
0: LOW LEVEL
1: HIGH LEVEL

NOTE :

TYPE	V_{DD}
74HCT04 TYPE	+5V
TC74AC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC08ANS (TI) FLAT PACKAGE
C-MOS QUAD 2-INPUT AND GATES
– TOP VIEW –


14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = A \cdot B = \overline{\overline{A} + \overline{B}}$

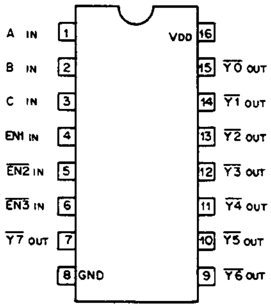
A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

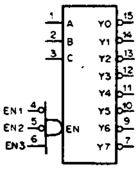
0; LOW LEVEL
1; HIGH LEVEL

NOTE :

TYPE	V_{DD}
TC74AC08F	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC138AN (TI)
C-MOS 3-TO-8 LINE DECODER/DEMULTIPLEXER
– TOP VIEW –


A IN 1
B IN 2
C IN 3
$\overline{EN1}$ IN 4
$\overline{EN2}$ IN 5
EN3 IN 6
$\overline{Y7}$ OUT 7
8 GND
VDD 16
15 $\overline{Y0}$ OUT
14 $\overline{Y1}$ OUT
13 $\overline{Y2}$ OUT
12 $\overline{Y3}$ OUT
11 $\overline{Y4}$ OUT
10 $\overline{Y5}$ OUT
9 $\overline{Y6}$ OUT


1 A
2 B
3 C
EN1 4
EN2 5
EN3 6
EN
Y0 15
Y1 14
Y2 13
Y3 12
Y4 11
Y5 10
Y6 9
Y7 7

INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

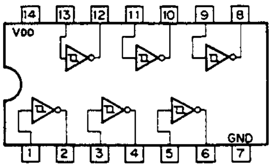
$EN = \overline{EN1} \cdot \overline{EN2} \cdot EN3$

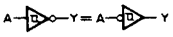
0 : LOW LEVEL
1 : HIGH LEVEL
X ; DON'T CARE

NOTE :

TYPE	V_{DD}
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC14AN (TI)
C-MOS HEX SCHMITT TRIGGER INVERTERS
– TOP VIEW –

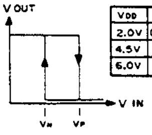

14
13
12
11
10
9
8
VDD
GND
1
2
3
4
5
6
7



$Y = \overline{A}$

A	Y
0	1
1	0

0;LOW LEVEL
1;HIGH LEVEL



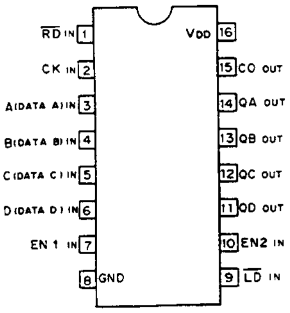
V_{DD}	V_N	V_P
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

NOTE :

TYPE	V_{DD}
TC74AC14 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC163ANS (TI) FLAT PACKAGE

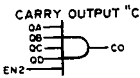
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
- TOP VIEW -


RD IN 1
CK IN 2
A(DATA A) IN 3
B(DATA B) IN 4
C(DATA C) IN 5
D(DATA D) IN 6
EN 1 IN 7
8 GND
VDD 16
15 CO OUT
14 QA OUT
13 QB OUT
12 QC OUT
11 QD OUT
10 EN2 IN
9 LD IN

MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

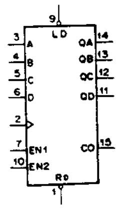
CARRY OUTPUT "CO"


QA
QB
QC
QD
EN2
CO

CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

NOTE :

TYPE	VDD
74ACT163 TYPE	+ 4.5 to + 5.5V
TC74AC163 TYPE	+ 2 to + 5.5V
OTHER TYPES	+ 2 to + 6V

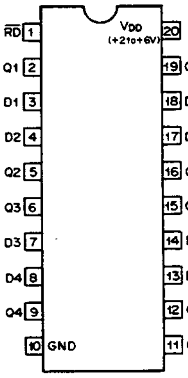

9
LD
3 A
4 B
5 C
6 D
2
7 EN1
10 EN2
RD
1
QA 14
QB 13
QC 12
QD 11
CO 15

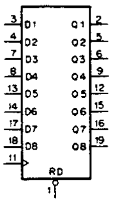
COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

SN74HC273ANS (TI) FLAT PACKAGE

C-MOS OCTAL D-TYPE FLIP-FLOPS WITH RESET
- TOP VIEW -

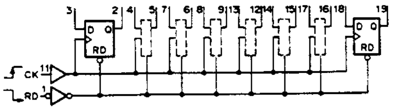

RD 1
Q1 2
D1 3
D2 4
Q2 5
Q3 6
D3 7
D4 8
Q4 9
10 GND
VDD (+2to+6V) 20
19 Q8
18 D8
17 D7
16 Q7
15 Q6
14 D6
13 D5
12 Q5
11 CK


3 D1
4 D2
7 D3
8 D4
13 D5
14 D6
17 D7
18 D8
11
RD
1
Q1 2
Q2 5
Q3 6
Q4 9
Q5 12
Q6 15
Q7 16
Q8 19

EACH FLIP-FLOP

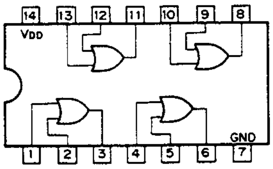
INPUT			OUT
RD	CK	D	Q
0	X	X	0
1	↑	0	0
1	↑	1	1
1	0	X	Q0

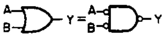
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE


3
2 4
5 7
6 8
9 13
12 14
15 17
16 18
19
D Q
RD
CK 11
RD 1

SN74HC32ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT OR GATES
- TOP VIEW -


14 13 12 11 10 9 8
VDD
GND
1 2 3 4 5 6 7



$Y = A + B = \overline{\overline{A} \cdot \overline{B}}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

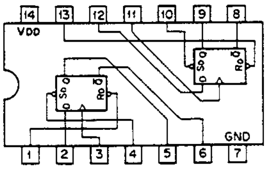
0 : LOW LEVEL
1 : HIGH LEVEL

NOTE :

TYPE	VDD
TC74AC32 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

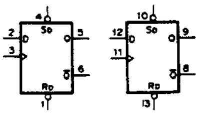
SN74HC74ANS (TI) FLAT PACKAGE

C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET
- TOP VIEW -


14 13 12 11 10 9 8
VDD
SD
RD
GND
1 2 3 4 5 6 7

INPUTS				OUTPUTS	
$\overline{SD}$	$\overline{RD}$	CK	D	Qn+1	$\overline{Qn+1}$
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	$\overline{Qn}$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

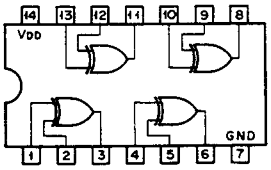

4
SD
2
3
5
6
RD
1
10
SD
12
11
9
8
RD
13

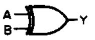
NOTE :

TYPE	VDD
TC74HCT74AF	+5V
TC74AC74 TYPE	+2 to +5.5V
74ACT74 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC86AN (TI)
SN74HC86ANS (TI) FLAT PACKAGE
TC74HC86AF (TOSHIBA) FLAT PACKAGE

C-MOS QUAD EXCLUSIVE OR GATES
- TOP VIEW -


14 13 12 11 10 9 8
VDD
GND
1 2 3 4 5 6 7



$Y = \overline{A} \cdot B + A \cdot \overline{B}$

A	B	Y
0	0	0
0	1	1
1	0	1
1	1	0

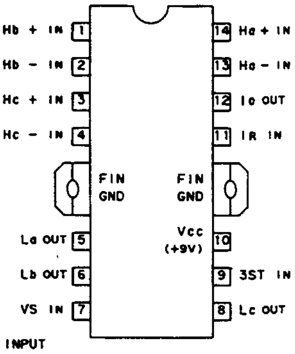
0 ; LOW LEVEL
1 ; HIGH LEVEL

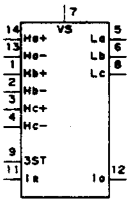
NOTE :

TYPE	VDD
TC74AC86 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

TA7262P-LB (TOSHIBA)

MOTOR DRIVER FOR DIRECT CURRENT COMPACT MOTOR
- TOP VIEW -


Hb + IN 1
Hb − IN 2
Hc + IN 3
Hc − IN 4
FIN GND
La OUT 5
Lb OUT 6
VS IN 7
14 Ha + IN
13 Ha − IN
12 Io OUT
11 IR IN
FIN GND
Vcc (+9V) 10
9 3ST IN
8 Lc OUT

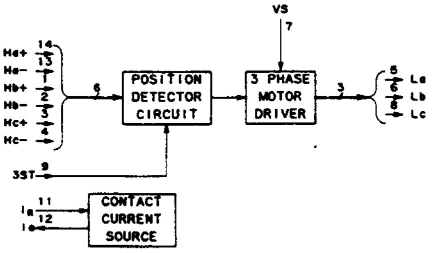

7
VS
14 Ha+
13 Ha−
1 Hb+
2 Hb−
3 Hc+
4 Hc−
9 3ST
11 IR
La 5
Lb 6
Lc 8
Io 12

INPUT

3ST	;MOTOR ROTATIONAL DIRECTION CONTROL
Ha.Hb.Hc +/−	;HOLE ELEMENT AMP
IR	;CONTACT CURRENT SOURCE
VS	;MOTOR INPUT VOLTAGE

OUTPUT

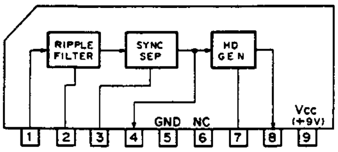
Io	;CONTACT CURRENT SOURCE
La.Lb.Lc	;3 PHASE MOTOR DRIVE


VS
7
Ha+ 14
Ha− 13
Hb+ 1
Hb− 2
Hc+ 3
Hc− 4
6
POSITION DETECTOR CIRCUIT
3 PHASE MOTOR DRIVER
3
5 La
6 Lb
8 Lc
3ST 9
IR 11
Io 12
CONTACT CURRENT SOURCE

TA7357AP (TOSHIBA)

SYNC SEPARATOR/HD PULSE GENERATOR

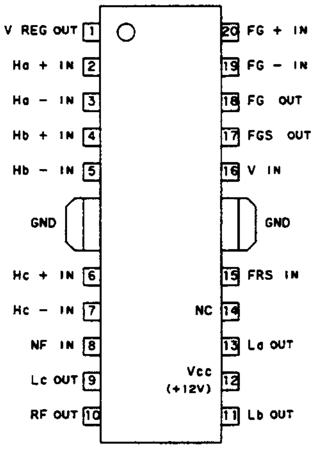
- SIDE VIEW -

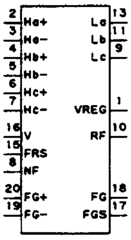

RIPPLE FILTER
SYNC SEP
HD GEN
GND
NC
Vcc (+9V)
1
2
3
4
5
6
7
8
9

TA8424F (TOSHIBA)

MOTOR DRIVER FOR DIRECT CURRENT COMPACT MOTOR

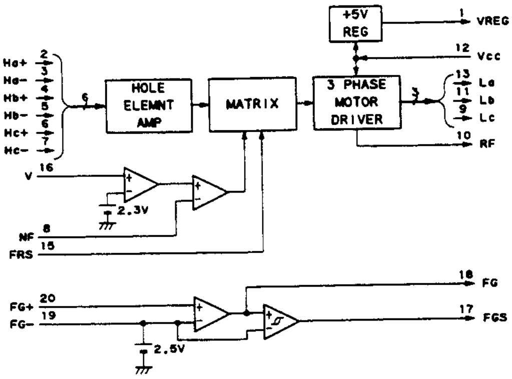
- TOP VIEW -


V REG OUT 1
Ha + IN 2
Ha − IN 3
Hb + IN 4
Hb − IN 5
GND
Hc + IN 6
Hc − IN 7
NF IN 8
Lc OUT 9
RF OUT 10
20 FG + IN
19 FG − IN
18 FG OUT
17 FGS OUT
16 V IN
GND
15 FRS IN
NC 14
13 La OUT
Vcc (+12V) 12
11 Lb OUT


Ha+
Ha−
Hb+
Hb−
Hc+
Hc−
V
FRS
NF
FG+
FG−
La
Lb
Lc
VREG
RF
FG
FGS

INPUT
FG +/− :FG INPUT AMP
FRS :MOTOR ROTATIONAL DIRECTION CONTROL
Ha.Hb.Hc +/− :HOLE ELEMENT AMP
NF :FEEDBACK OUTPUT CURRENT
V :CONTROL VOLTAGE

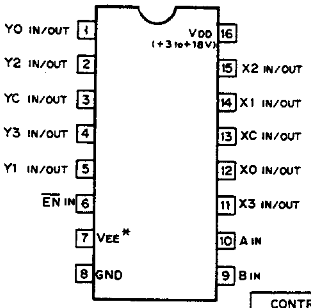
OUTPUT
FG :FG GAIN AMP
FGS :FG HYSTERESIS AMP
La.Lb.Lc :3 PHASE MOTOR DRIVE
RF :OUTPUT CURRENT DETECTOR
V REG :VOLTAGE REGULATOR

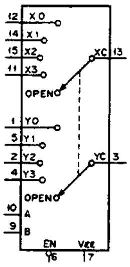

+5V REG
VREG
Vcc
HOLE ELEMNT AMP
MATRIX
3 PHASE MOTOR DRIVER
Ha+
Ha−
Hb+
Hb−
Hc+
Hc−
La
Lb
Lc
RF
V
2.3V
NF
FRS
FG+
FG−
2.5V
FG
FGS

TC4052BF (TOSHIBA) FLAT PACKAGE

C-MOS DUAL 4-CHANNEL ANALOG MULTIPLEXERS/DEMULTIPLEXERS

- TOP VIEW -


Y0 IN/OUT 1
Y2 IN/OUT 2
YC IN/OUT 3
Y3 IN/OUT 4
Y1 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3 to +18V) 16
15 X2 IN/OUT
14 X1 IN/OUT
13 XC IN/OUT
12 X0 IN/OUT
11 X3 IN/OUT
10 A IN
9 B IN


X0
X1
X2
X3
XC
OPEN
Y0
Y1
Y2
Y3
YC
OPEN
A
B
EN
VEE

VEE* ; VDD−VEE = +3 to +18V

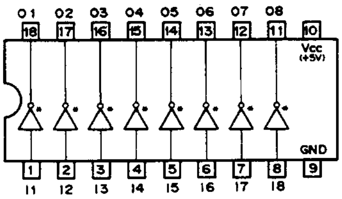
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

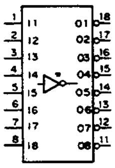
CONTROL INPUTS			"ON" CHANNEL
EN	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	X	X	OPEN

TD62381F (TOSHIBA) FLAT PACKAGE

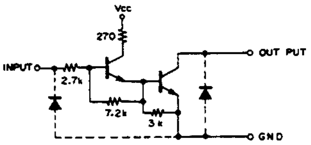
OCTAL LOW SATURATION DRIVER

- TOP VIEW -


O1
O2
O3
O4
O5
O6
O7
O8
Vcc (+5V)
GND
I1
I2
I3
I4
I5
I6
I7
I8


I1
I2
I3
I4
I5
I6
I7
I8
O1
O2
O3
O4
O5
O6
O7
O8

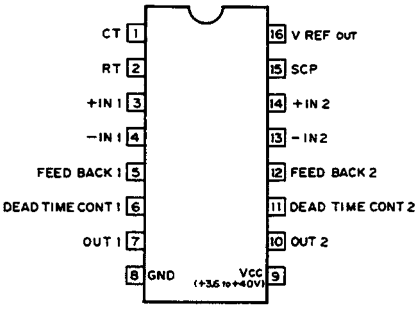
*; OPEN COLLECTOR

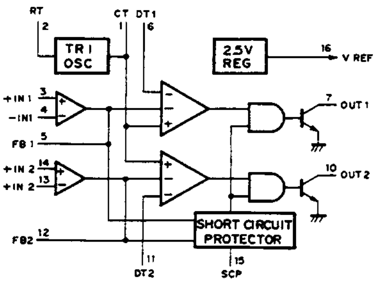

Vcc
270
INPUT
2.7k
7.2k
3k
OUT PUT
GND

TL1451ACNS (TI) FLAT PACKAGE

DUAL PWM POWER CONTROLLER

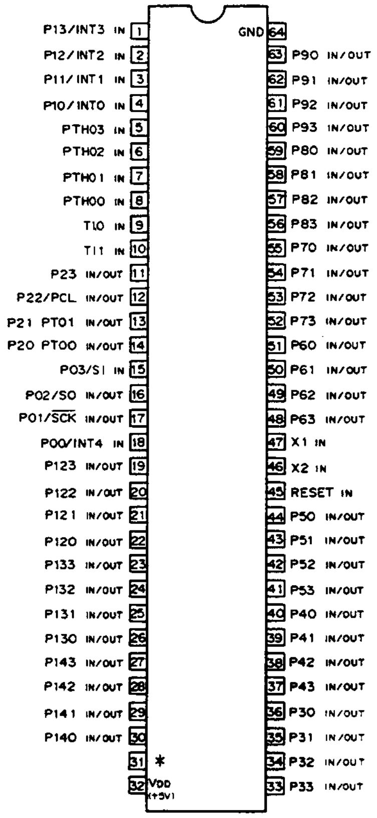
- TOP VIEW -

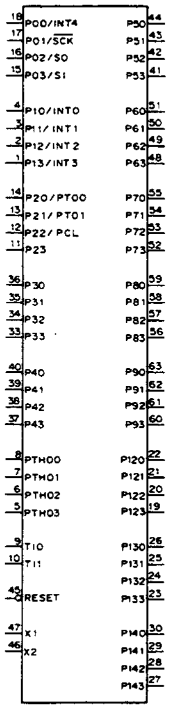

CT 1
RT 2
+IN 1 3
−IN 1 4
FEED BACK 1 5
DEAD TIME CONT 1 6
OUT 1 7
8 GND
16 V REF OUT
15 SCP
14 +IN 2
13 −IN 2
12 FEED BACK 2
11 DEAD TIME CONT 2
10 OUT 2
Vcc (+3.6 to +40V) 9


RT
CT
DT1
TRI OSC
2.5V REG
V REF
+IN 1
−IN 1
FB 1
+IN 2
+IN 2
FB2
OUT 1
OUT 2
SHORT CIRCUIT PROTECTOR
DT2
SCP

UPD75108CW (NEC)
UPD75P108CW (NEC)

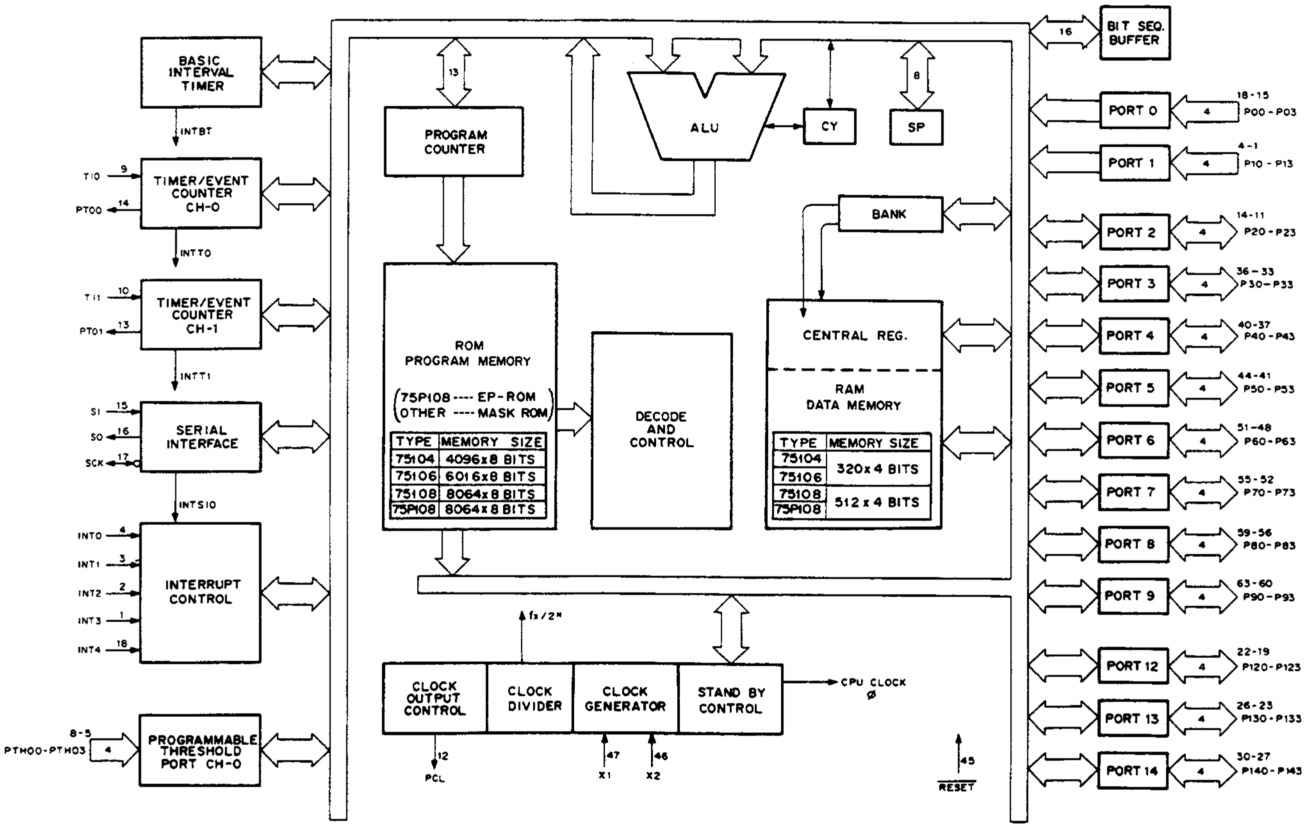
C-MOS 1 CHIP 4-BIT MICROCOMPUTER
- TOP VIEW -


P13/INT3 IN 1
P12/INT2 IN 2
P11/INT1 IN 3
P10/INT0 IN 4
PTH03 IN 5
PTH02 IN 6
PTH01 IN 7
PTH00 IN 8
TI0 IN 9
TI1 IN 10
P23 IN/OUT 11
P22/PCL IN/OUT 12
P21 PT01 IN/OUT 13
P20 PT00 IN/OUT 14
P03/SI IN 15
P02/SO IN/OUT 16
P01/SCK IN/OUT 17
P00/INT4 IN 18
P123 IN/OUT 19
P122 IN/OUT 20
P121 IN/OUT 21
P120 IN/OUT 22
P133 IN/OUT 23
P132 IN/OUT 24
P131 IN/OUT 25
P130 IN/OUT 26
P143 IN/OUT 27
P142 IN/OUT 28
P141 IN/OUT 29
P140 IN/OUT 30
31 *
32 VDD (+5V)
GND 64
63 P90 IN/OUT
62 P91 IN/OUT
61 P92 IN/OUT
60 P93 IN/OUT
59 P80 IN/OUT
58 P81 IN/OUT
57 P82 IN/OUT
56 P83 IN/OUT
55 P70 IN/OUT
54 P71 IN/OUT
53 P72 IN/OUT
52 P73 IN/OUT
51 P60 IN/OUT
50 P61 IN/OUT
49 P62 IN/OUT
48 P63 IN/OUT
47 X1 IN
46 X2 IN
45 RESET IN
44 P50 IN/OUT
43 P51 IN/OUT
42 P52 IN/OUT
41 P53 IN/OUT
40 P40 IN/OUT
39 P41 IN/OUT
38 P42 IN/OUT
37 P43 IN/OUT
36 P30 IN/OUT
35 P31 IN/OUT
34 P32 IN/OUT
33 P33 IN/OUT


18 P00/INT4
17 P01/SCK
16 P02/SO
15 P03/SI
4 P10/INT0
3 P11/INT1
2 P12/INT2
1 P13/INT3
14 P20/PT00
13 P21/PT01
12 P22/PCL
11 P23
36 P30
35 P31
34 P32
33 P33
40 P40
39 P41
38 P42
37 P43
8 PTH00
7 PTH01
6 PTH02
5 PTH03
9 TI0
10 TI1
45 RESET
47 X1
46 X2
P50 44
P51 43
P52 42
P53 41
P60 51
P61 50
P62 49
P63 48
P70 55
P71 54
P72 53
P73 52
P80 59
P81 58
P82 57
P83 56
P90 63
P91 62
P92 61
P93 60
P120 22
P121 21
P122 20
P123 19
P130 26
P131 25
P132 24
P133 23
P140 30
P141 29
P142 28
P143 27

*; PIN31
Vpp(+5V) ; 75P108 TYPE
NC ; OTHER TYPES

INT0 – INT4	: INTERRUPT INPUTS
P00 – P03	: 4-BIT INPUT PORT (PORT0)
P10 – P13	: 4-BIT INPUT PORT (PORT1)
P20 – P23	: 4-BIT I/O PORT (PORT2)
P30 – P33	: 4-BIT I/O PORT (PORT3), PROGRAMMABLE
P40 – P43	: 4-BIT I/O PORT (PORT4)
P50 – P53	: 4-BIT I/O PORT (PORT5)
P60 – P63	: 4-BIT I/O PORT (PORT6), PROGRAMMABLE
P70 – P73	: 4-BIT I/O PORT (PORT7)
P80 – P83	: 4-BIT I/O PORT (PORT8)
P90 – P93	: 4-BIT I/O PORT (PORT9)
P120 – P123	: 4-BIT I/O PORT (PORT12), OPEN DRAIN
P130 – P133	: 4-BIT I/O PORT (PORT13), OPEN DRAIN
P140 – P143	: 4-BIT I/O PORT (PORT14), OPEN DRAIN
PCL	: CLOCK OUTPUT, PROGRAMABLE
PTH00 – PTH03	: THRESHOLD 4-BIT ANALOG INPUT PORT, PROGRAMABLE
PT00	: TIMER/EVENT COUNTER OUTPUT (CH-1)
PT01	: TIMER/EVENT COUNTER OUTPUT (CH-2)
RESET	: SYSTEM RESET INPUT
SI	: SERIAL INTERFACE DATA INPUT
SO	: SERIAL INTERFACE DATA OUTPUT
SCK	: SERIAL INTERFACE CLOCK INPUT/OUTPUT
TI0	: TIMER/EVENT COUNTER CLOCK INPUT (CH-0)
TI1	: TIMER/EVENT COUNTER CLOCK INPUT (CH-1)
X1, X2	: CONNECTED CRYSTAL FOR SYSTEM CLOCK GENERATE

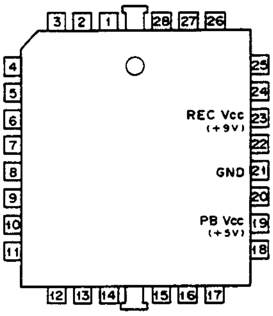

BASIC INTERVAL TIMER
INTBT
TI0 9
PT00 14
TIMER/EVENT COUNTER CH-0
INTT0
TI1 10
PT01 13
TIMER/EVENT COUNTER CH-1
INTT1
SI 15
SO 16
SCK 17
SERIAL INTERFACE
INTSIO
INT0 4
INT1 3
INT2 2
INT3 1
INT4 18
INTERRUPT CONTROL
8-5
PTH00-PTH03
4
PROGRAMMABLE THRESHOLD PORT CH-0
13
PROGRAM COUNTER
ALU
CY
8
SP
BANK
ROM PROGRAM MEMORY
(75P108 ---- EP-ROM
OTHER ---- MASK ROM)
DECODE AND CONTROL
CENTRAL REG.
RAM DATA MEMORY
fx/2ᴺ
CLOCK OUTPUT CONTROL
CLOCK DIVIDER
CLOCK GENERATOR
STAND BY CONTROL
CPU CLOCK ø
12 PCL
47 X1
46 X2
45 RESET
16
BIT SEQ. BUFFER
PORT 0 4 18-15 P00-P03
PORT 1 4 4-1 P10-P13
PORT 2 4 14-11 P20-P23
PORT 3 4 36-33 P30-P33
PORT 4 4 40-37 P40-P43
PORT 5 4 44-41 P50-P53
PORT 6 4 51-48 P60-P63
PORT 7 4 55-52 P70-P73
PORT 8 4 59-56 P80-P83
PORT 9 4 63-60 P90-P93
PORT 12 4 22-19 P120-P123
PORT 13 4 26-23 P130-P133
PORT 14 4 30-27 P140-P143

TYPE	MEMORY SIZE
75104	4096x8 BITS
75106	6016x8 BITS
75108	8064x8 BITS
75P108	8064x8 BITS

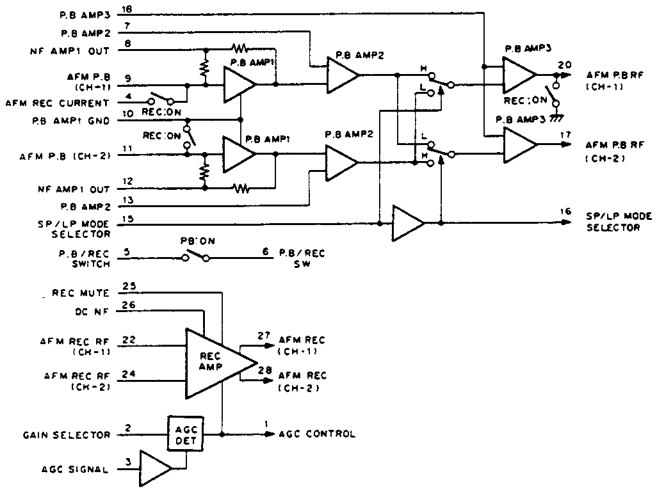
TYPE	MEMORY SIZE
75104	320x4 BITS
75106	
75108	512x4 BITS
75P108	

HA12115MP (HITACHI)

REC/PLAY AMPLIFIER FOR Hi-Fi VHS
- TOP VIEW -

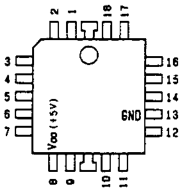

3
2
1
28
27
26
4
5
6
7
8
9
10
11
25
24
REC Vcc (+9V)
23
22
GND
21
20
PB Vcc (+5V)
19
18
12
13
14
15
16
17

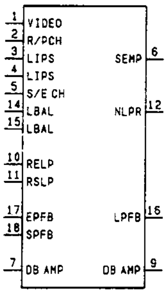
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	O	AGC CONTROL	15	I	SP/LP MODE SELECTOR
2	I	GAIN SELECTOR	16	O	SP/LP MODE SELECTOR
3	I	AGC SIGNAL	17	O	AFM P.B RF (CH-1)
4	I	AFM REC CURRENT	18	I	P.B AMP3
5	I	P.B/REC SWITCH	19	–	P.B Vcc
6	O	P.B/REC SWITCH	20		AFM P.B RF (CH-2)
7	I	P.B AMP2	21	–	GND
8	O	NF AMP1	22	I	AFM REC RF (CH-1)
9	I	AFM P.B (CH-1)	23	–	REC Vcc
10	I	P.B AMP1 GND	24	I	AFM REC RF (CH-2)
11	I	AFM P.B (CH-2)	25	I	REC MUTE
12	I	NF AMP1	26	I	DC NF
13	O	P.B AMP1	27	O	AFM REC (CH-1)
14	–	PRE Vcc	28	O	AFM REC (CH-2)


P.B AMP3 18
P.B AMP2 7
NF AMP1 OUT 8
AFM P.B (CH-1) 9
AFM REC CURRENT 4
P.B AMP1 GND 10
REC:ON
REC:ON
AFM P.B (CH-2) 11
NF AMP1 OUT 12
P.B AMP2 13
SP/LP MODE SELECTOR 15
P.B/REC SWITCH 5
PB:ON
6 P.B/REC SW
P.B AMP1
P.B AMP1
P.B AMP2
P.B AMP2
H
L
L
H
P.B AMP3
P.B AMP3
REC:ON
20 AFM P.B RF (CH-1)
17 AFM P.B RF (CH-2)
16 SP/LP MODE SELECTOR
REC MUTE 25
DC NF 26
AFM REC RF (CH-1) 22
AFM REC RF (CH-2) 24
REC AMP
27 AFM REC (CH-1)
28 AFM REC (CH-2)
GAIN SELECTOR 2
AGC DET
1 AGC CONTROL
AGC SIGNAL 3

VC2076MP (JVC)

Y SIGNAL PROCESSOR FOR VTR
- TOP VIEW -

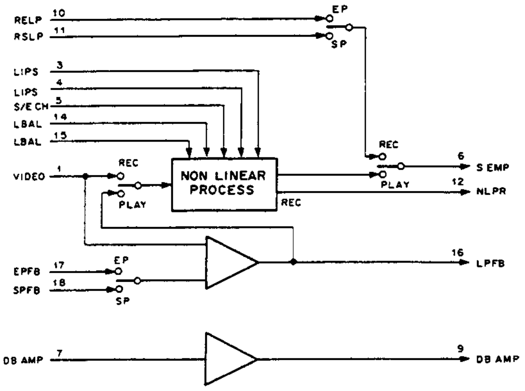

2
1
18
17
3
4
5
6
7
16
15
14
13
12
Vcc (+5V)
GND
8
9
10
11


1 VIDEO
2 R/PCH
3 LIPS
4 LIPS
5 S/E CH
14 LBAL
15 LBAL
10 RELP
11 RSLP
17 EPFB
18 SPFB
7 DB AMP
SEMP 6
NLPR 12
LPFB 16
DB AMP 9

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	VIDEO	10	I	RELP
2	I	R/P CH	11	I	RSLP
3	I	LIPS	12	O	NLPR
4	I	LIPS	13	–	GND
5	I	S/E CH	14	I	LBAL
6	O	S EMP	15	I	LBAL
7	I	DB AMP	16	O	LPFB
8	–	Vcc	17	I	EPFB
9	O	DB AMP	18	I	SPFB

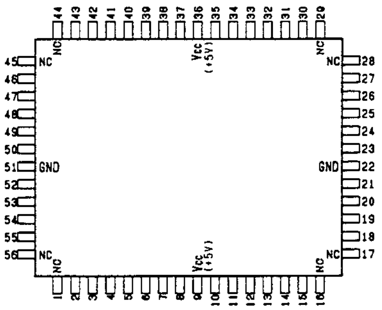
INPUT
DB AMP : 6dB AMP IN
EPFB : PB EP LINEAR PROCESS FEEDBACK
LBAL : LIMITER BALANCE TERMINAL
LIPS : LIMITER POWER SMOOTHING TERMINAL
R/P CH : REC/PB CHANGE
RELP : REC EP LINEAR PROCESS
RSLP : REC SP LINEAR PROCESS
S/E CH : SP/EP CHANGE
SPFB : PB SP LINEAR PROCESS FEEDBACK
VIDEO : VIDEO IN

OUTPUT
DB AMP : 6dB AMP OUT
LPFB : PB LINEAR PROCESS FEEDBACK
NLPR : NON LINEAR PROCESS
S EMP : SUB EMPHASIS


RELP 10
RSLP 11
EP
SP
LIPS 3
LIPS 4
S/E CH 5
LBAL 14
LBAL 15
VIDEO 1
REC
PLAY
NON LINEAR PROCESS
REC
REC
PLAY
6 S EMP
12 NLPR
EPFB 17
SPFB 18
EP
SP
16 LPFB
DB AMP 7
9 DB AMP

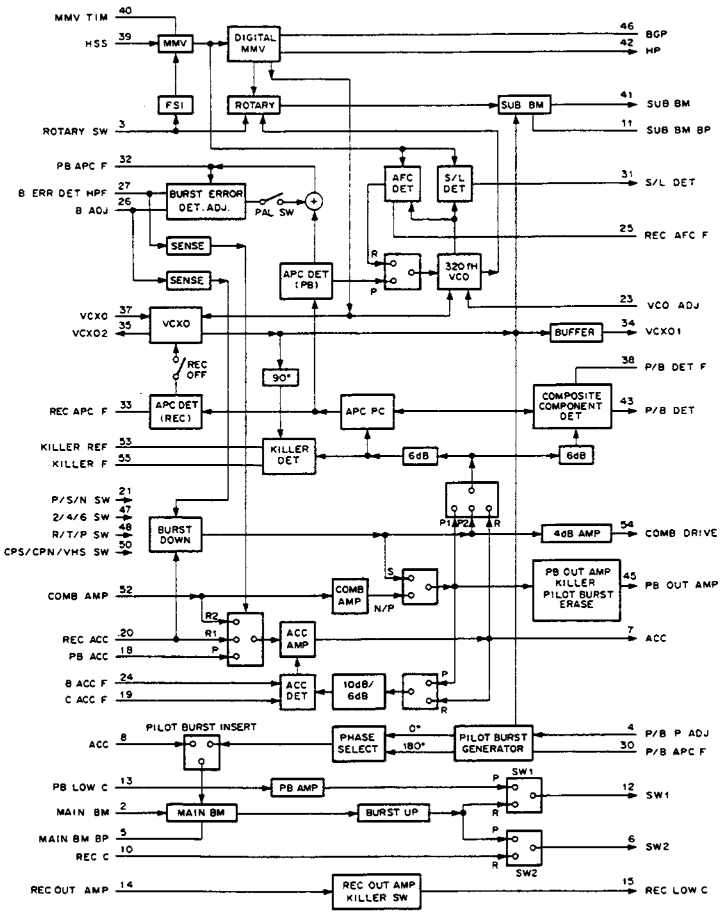
M52059AFP (MITSUBISHI)

- TOP VIEW -


44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
NC
Vcc (+5V)
NC
45
46
47
48
49
50
51
52
53
54
55
56
NC
GND
NC
NC
GND
NC
28
27
26
25
24
23
22
21
20
19
18
17
NC
Vcc (+5V)
NC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

(Vcc = + 5V)

PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL	PIN No.	I/O	SYMBOL
1	–	NC	20	I	REC ACC	39	I	HSS
2	I	MAIN BM	21	I	P/S/N SW	40	–	MMV TIM
3	I	ROTARY SW	22	–	GND	41	O	SUB BM
4	I	P/B P ADJ	23	I	VCO ADJ	42	O	HP
5	I	MAIN BM BP	24	–	B ACC F	43	O	P/B DET
6	O	SW2	25	–	REC AFC F	44	–	NC
7	O	ACC	26	I	B ADJ	45	–	NC
8	I	ACC	27	–	B ERR DET HPF	46	O	BGP
9	–	Vcc	28	–	NC	47	I	2/4/6 SW
10	I	REC C	29	–	NC	48	I	R/T/P SW
11	I	SUB BM BP	30	I	P/B G ADJ	49	O	PB OUT AMP
12	O	SW1	31	O	S/L DET	50	I	CPS/CPN/VHS SW
13	I	PB LOW C	32	–	PB APC F	51	–	GND
14	I	REC OUT AMP	33	–	REC APC F	52	I	COMB AMP
15	O	REC LOW C	34	O	VCXO 1	53	–	KILLER REF
16	–	NC	35	O	VCXO 2	54	O	COMB DRIVE
17	–	NC	36	–	Vcc	55	–	KILLER F
18	I	PB ACC	37	I	VCXO	56	–	NC
19	–	C ACC F	38	–	P/B DET F			

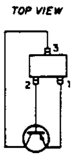

MMV TIM 40
HSS 39
MMV
DIGITAL MMV
46 BGP
42 HP
FSI
ROTARY
SUB BM
41 SUB BM
11 SUB BM BP
ROTARY SW 3
PB APC F 32
B ERR DET HPF 27
B ADJ 26
BURST ERROR DET. ADJ.
PAL SW
+
AFC DET
S/L DET
31 S/L DET
25 REC AFC F
SENSE
SENSE
APC DET (PB)
R
P
320 fH VCO
23 VCO ADJ
VCXO 37
VCXO2 35
VCXO
BUFFER
34 VCXO1
REC OFF
90°
38 P/B DET F
REC APC F 33
APC DET (REC)
APC PC
COMPOSITE COMPONENT DET
43 P/B DET
KILLER REF 53
KILLER F 55
KILLER DET
6dB
6dB
P/S/N SW 21
2/4/6 SW 47
R/T/P SW 48
CPS/CPN/VHS SW 50
BURST DOWN
P1
P2
R
4dB AMP
54 COMB DRIVE
S
COMB AMP 52
COMB AMP
N/P
PB OUT AMP KILLER PILOT BURST ERASE
45 PB OUT AMP
R2
R1
P
REC ACC 20
PB ACC 18
ACC AMP
7 ACC
B ACC F 24
C ACC F 19
ACC DET
10dB/ 6dB
P
R
PILOT BURST INSERT
ACC 8
PHASE SELECT
0°
180°
PILOT BURST GENERATOR
4 P/B P ADJ
30 P/B APC F
PB LOW C 13
PB AMP
SW1
P
R
12 SW1
MAIN BM 2
MAIN BM
BURST UP
MAIN BM BP 5
REC C 10
P
R
SW2
6 SW2
REC OUT AMP 14
REC OUT AMP KILLER SW
15 REC LOW C

INPUT
2/4/6 SW ; 2H/4H/6H SWITCH CONTROL
ACC ; ACC OUTPUT
B ADJ ; BURST ADJUST
COMB AMP ; COMB AMPLIFIER
CPS/CPN/VHS SW ; COMPSITE/COMPONENT/VHS SWITCH CONTROL
HSS ; HORIZONTAL SYNC SIGNAL
MAIN BM ; MAIN BALANCED MODULATOR
MAIN BM BP ; MAIN BALANCED MODULATOR BYPASS CONTROL
P/B G ADJ ; PILOT BURST GAIN ADJUST
P/B P ADJ ; PILOT BURST PHASE ADJUST
P/S/N SW ; PAL/SECAM/NTSC SWITCH CONTROL
PB ACC ; AUTOMATIC COLOR CONTROL AMPLIFIER FOR PB
PB LOW C ; PB LOW RESONANCE CHROMA
R/T/P SW ; REC/TRICK/PB SWITCH CONTROL
REC ACC ; AUTOMATIC COLOR CONTROL AMPLIFIER FOR REC
REC C ; REC CHROMA SIGNAL
REC OUT AMP ; REC SIGNAL OUTPUT AMPLIFIER
ROTARY SW ; ROTATION SWITCH CONTROL
SUB BM BP ; SUB BALANCED MODULATOR BYPASS CONTROL
VCO ADJ ; 320 fH VCO ADJUST
VCXO : VOLTAGE CONTROLED CRYSTAL OSCILLATOR

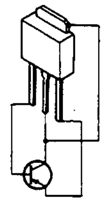
OUTPUT
ACC ; AUTOMATIC COLOR CONTROL AMPLIFITER
BGP ; BURST GATE PULSE
COMB DRIVE ; COMB DRIVE
HP ; HORIZONTAL PULSE
P/B DET ; PILOT BURST DETECTTION
PB OUT AMP ; PB SIGNAL OUTPUT AMPLIFIER
REC LOW C ; REC LOW RESONANCE CHROMA
S/L DET ; SIDE LOCK DETECTION
SUB BM ; SUB BALANCED MODULATOR
SW1 ; SWITCH 1
SW2 ; SWITCH 2
VCXO 1 ; BUFFERED VCXO
VCXO 2 ; VOLTAGE CONTROLED CRYSTAL OSCILLATOR

OTHER
B ACC F ; AUTOMATIC COLOR CONTROL FILTER FOR BURST
B ERR DET HPF ; BURST ERROR DETECT HIGH-PASS FILTER
C ACC F ; AUTOMATIC COLOR CONTROL FILTER FOR CHROMA
KILLER F ; COLOR KILLER FILTER
KILLER REF ; COLOR KILLER REFERENCE FILTER
MMV TIM ; MONOSTABLE MULTIVIBRATOR TIMING TIME CONSTANT
P/B DET F ; PILOT BURST DETECTION FILTER
PB APC F ; AUTOMATIC FREQUENCY CONTROL FILTER FOR PB
REC AFC F ; AUTOMATIC FREQUENCY CONTROL FILTER FOR REC
REC APC F ; AUTOMATIC PHASE CONTROL FILTER FOR REC

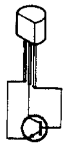
TRANSISTOR


TOP VIEW
3
2
1

2SA1162
2SA812



2SB1204



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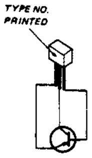
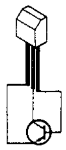
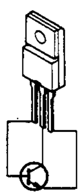
2SC2878


TYPE NO. PRINTED

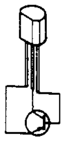
2SA1175



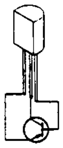
2SB733



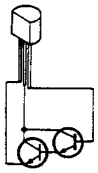
2SC4558



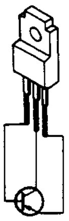
2SA1319



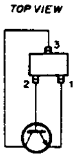
2SB739



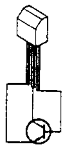
2SD1111



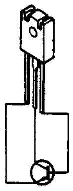
2SA1441
2SB1370


TOP VIEW
3
2
1

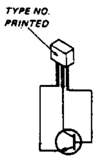
2SC1623
2SC2712
2SC2715
2SC3326N
2SC3735



2SD774



2SB1142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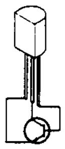
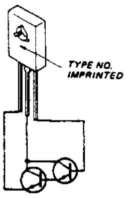


2SD788


TYPE NO. IMPRINTED

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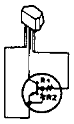
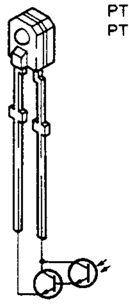
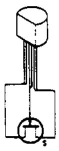


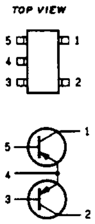
DTC144ES (R1 = 47K, R2 = 47K)



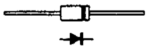
PT483F1
PT483F1S



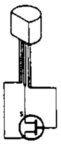
2SK105A


TOP VIEW
5
4
3
1
2
5
1
4
3
2

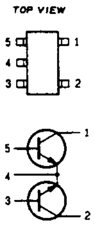
FMS1FE



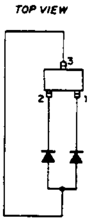
10E2
1SS119



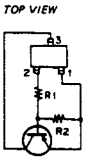
2SK523


TOP VIEW
5
4
3
1
2
5
1
4
3
2

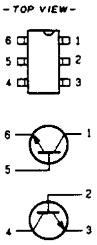
FMW1


TOP VIEW
3
2
1

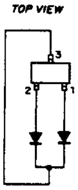
1S2835
1S2836


TOP VIEW
3
2
1
R1
R2

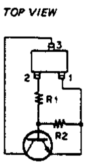
DTA144EK (R1 = 47K, R2 = 47K)
DTB143EK (R1 = 4.7K, R2 = 4.7K)


- TOP VIEW -
6
5
4
1
2
3
6
1
5
2
4
3

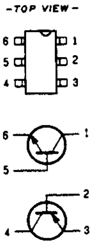
IMX1


TOP VIEW
3
2
1

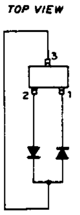
1S2837
MA152WK


TOP VIEW
3
2
1
R1
R2

DTC114YK (R1 = 10K, R2 = 47K)
DTC124EK (R1 = 22K, R2 = 22K)
DTC144EK (R1 = 47K, R2 = 47K)

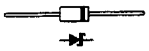

-TOP VIEW-
6
5
4
1
2
3
6
1
5
2
4
3

IMZ1

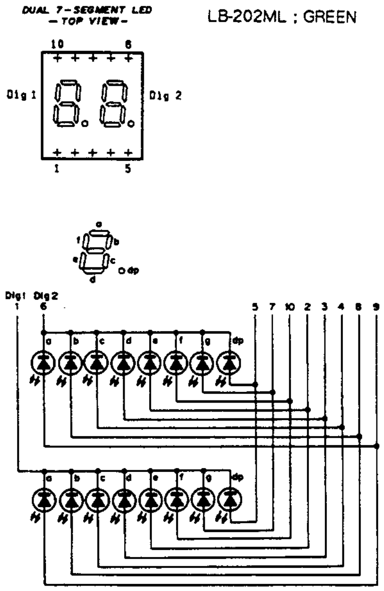

TOP VIEW
3
2
1

1SS123
1SS226

DIODE, PHOTO-COUPLER

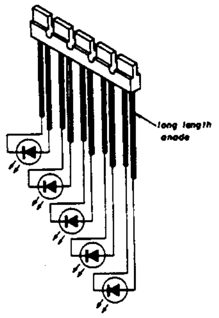


1SS99
ERB81-004
ERC81-004



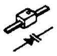
DUAL 7-SEGMENT LED
– TOP VIEW –
10
6
Dig 1
Dig 2
1
5
a
b
c
d
e
f
g
dp
Dig1 Dig2
1 6
5 7 10 2 3 4 8 9

LB-202ML ; GREEN

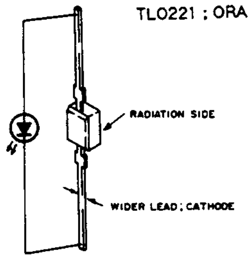


long length anode

SLJ-165MG5HLF ; GREEN

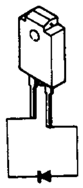


1T32
1T33C

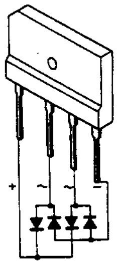


RADIATION SIDE
WIDER LEAD ; CATHODE

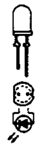
TLO221 ; ORANGE



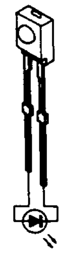
ERC62M-004



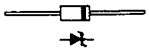
RBV-602



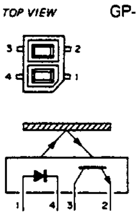
TLUG154 ; GREEN



GL451V ; INFRARED
GL451VS1 ; INFRARED

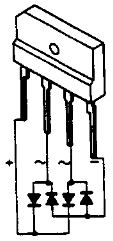


RD ? ?ESB ?
RD ? ?FB ?

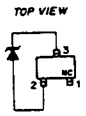


TOP VIEW
3
2
4
1
1
4
3
2

GP-2S09

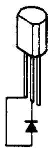


RBA-406B

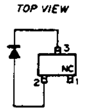


TOP VIEW
3
NC
2
1

RD ? ?M-B ?
UZM ? ?X



SB05-05NP



TOP VIEW
3
NC
2
1

SB05-05CP

SECTION 13

BOARD LAYOUTS AND SCHEMATIC DIAGRAMS

CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARD

SYSTEM	BOARD	CIRCUIT FUNCTION	PAGE
VIDEO	RP-62A	Video & AFM Head Amp.	13-2
	CR-39	Chroma Process	13-4
	VM-12P	Chroma Noise Reducer/Video Memory/Chroma Encoder	13-12
	VO-37A (inc. DUS-592*)	Y/C Video Process	13-24 (13-31)
AUDIO	AU-161A	AFM Process/Normal Audio Process	13-32
	AH-28	Audio/Erase/CTL Head	13-59
SERVO • SYSTEM CONTROL	SS-49A (inc. DUS-445 inc. DUS-534)	Servo & System Control	13-38 (13-41 13-45)
	DR-153(a)	T-Reel Driver	13-53
	DR-153(b)	S-Reel Driver	13-53
	DR-167	CAM Mode Detect & Drum Motor Driver	13-50
	DR-176	Capstan FG Amp. & Capstan Motor Driver	13-51
	DUS-544	Capacitor for T-Brake Solenoid	13-50
	CM-14	Cassette Compartment Motor	13-58(13-39)
	LD-35	Loading Motor	13-58(13-39)
	LE-80	Tape Top/End LED	13-52
	LE-86	Tension Regulator LED	13-52
	KY-219	Function Key/LED/Switch	13-48
	DP-165	Counter Display	13-48
	SE-151	Tape End Sensor	13-50
	SE-152	Tape Top Sensor	13-52
	SE-159	Tension Regulator CDS Detect	13-52
	HN-160	Connection	13-52
POWER	AC-136	AC Input	13-54
	DC-53A	AC-DC Power Regulator	13-54
CONNECTOR	CP-183 (inc. DUS-442)	Connection of Rear Connector	13-56 (13-56)
	CN-633	Connection of Front Connector	13-56

* : S/N 10031 and higher

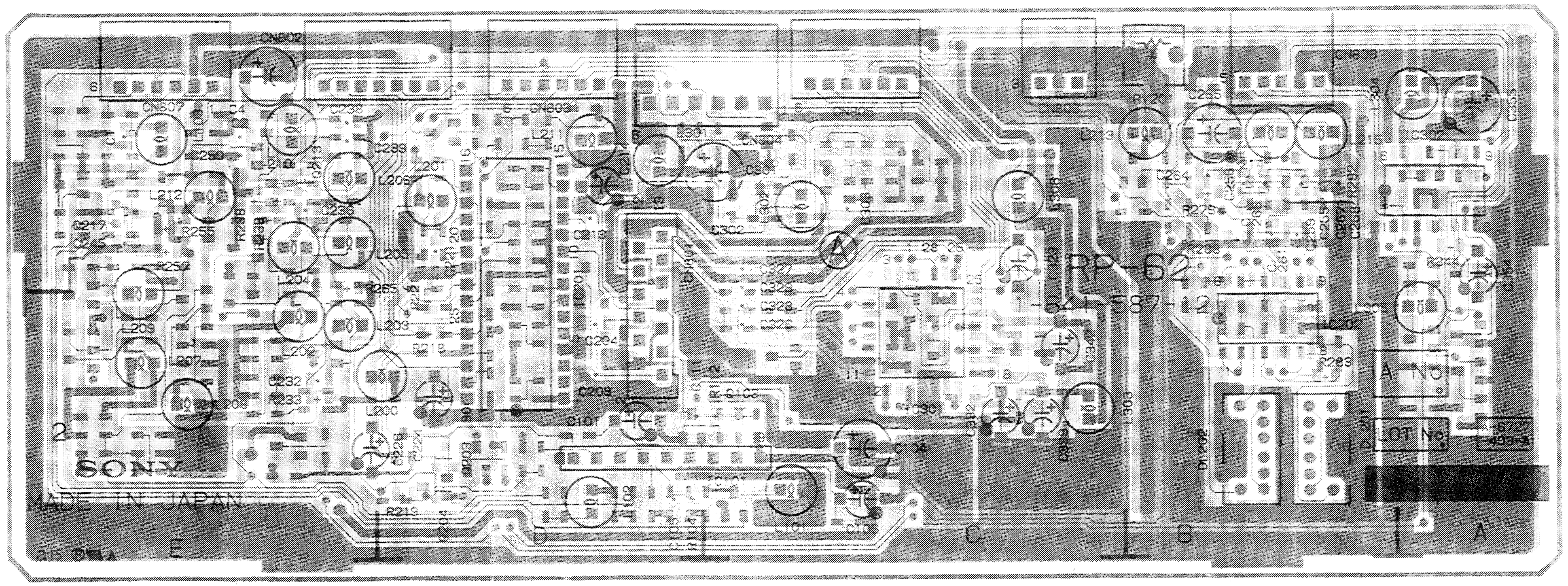
Note: The mentioned items at waveform photograph of this section are measurement point, board location, and machine operation mode.

RP-62A ; VIDEO & AFM HEAD AMP

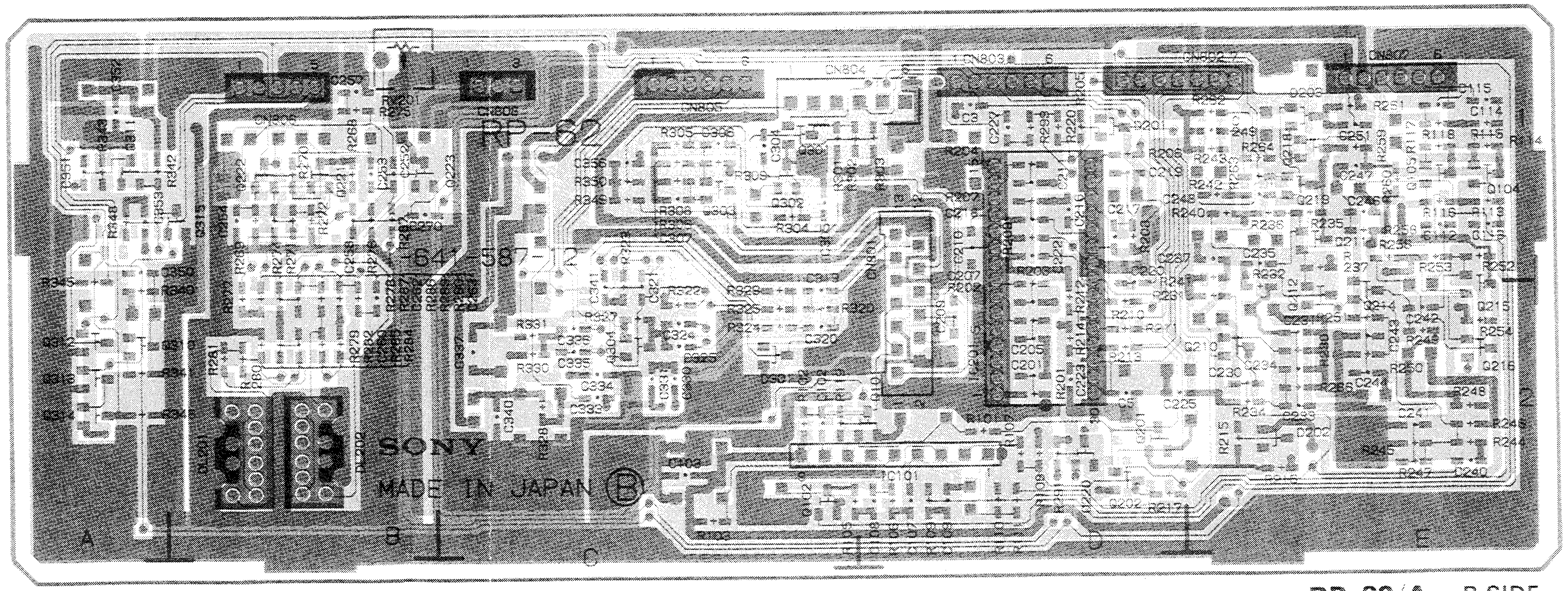
RP-62A (1-641-587-12)

CN801	D-1	
CN802	E-1	
CN803	D-1	
CN804	C-1	
CN805	C-1	
CN806	B-1	
CN807	E-1	
CN808	C-1	
DL201	B-2	
DL202	B-2	
D201	D-1	*
D202	E-2	*
D203	E-1	*
D301	C-2	*
IC101	C-2	
IC201	D-2	
IC202	B-2	
IC301	C-2	
IC302	A-1	
Q101	D-2	*
Q102	C-2	*
Q103	C-2	
Q104	E-1	*
Q105	E-1	*
Q201	D-2	*
Q202	D-2	*
Q203	D-2	
Q204	D-2	
Q210	E-2	*
Q211	E-1	*
Q212	E-2	*
Q213	E-1	
Q214	E-2	*
Q215	D-1	*
Q216	D-2	*
Q217	E-1	
Q218	E-1	*
Q219	E-1	*
Q220	D-2	*
Q221	B-1	*
Q222	B-1	*
Q223	C-1	*
Q301	C-1	*
Q302	C-1	*
Q303	C-1	*
Q304	C-2	*
Q310	B-2	*
Q311	A-1	*
Q312	A-2	*
Q313	A-2	*
Q314	A-2	*
Q315	B-1	*
RV201	B-1	

* mark ; B SIDE mount


SONY
MADE IN JAPAN
RP-62
1-641-587-12
LOT No.
A
B
C
D
E

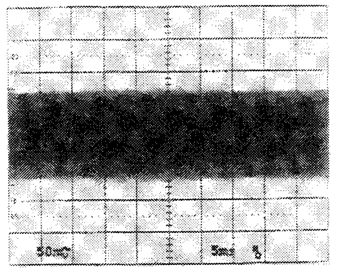
RP-62/A — A SIDE —
1-641-587-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


SONY
MADE IN JAPAN Ⓑ
RP-62
1-641-587-12
A
B
C
D
E

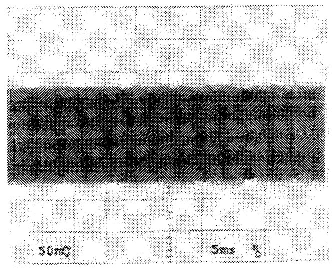
RP-62/A — B SIDE —
1-641-587-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

RP-62A ; VIDEO & AFM HEAD AMP

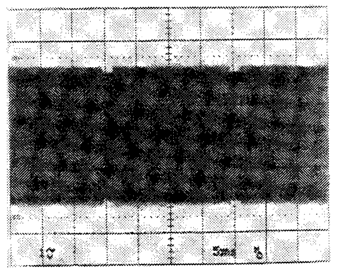
① CN804 pin 1 (C-1) REC mode



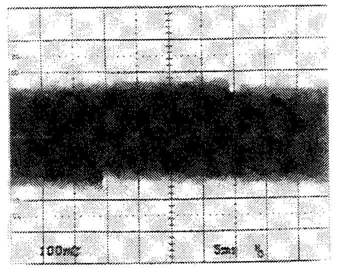
② CN804 pin 2 (C-1) PB mode (S)
CN804 pin 5 (C-1) (TRIG)



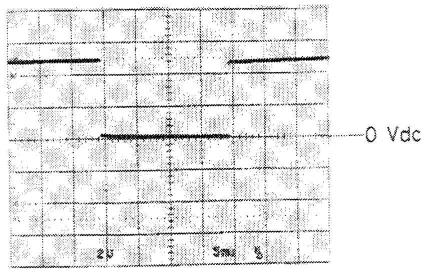
③ CN804 pin 3 (C-1) REC mode
CN804 pin 5 (C-1) (TRIG)



④ CN804 pin 4 (C-1) PB mode (N)
CN804 pin 5 (C-1) (TRIG)



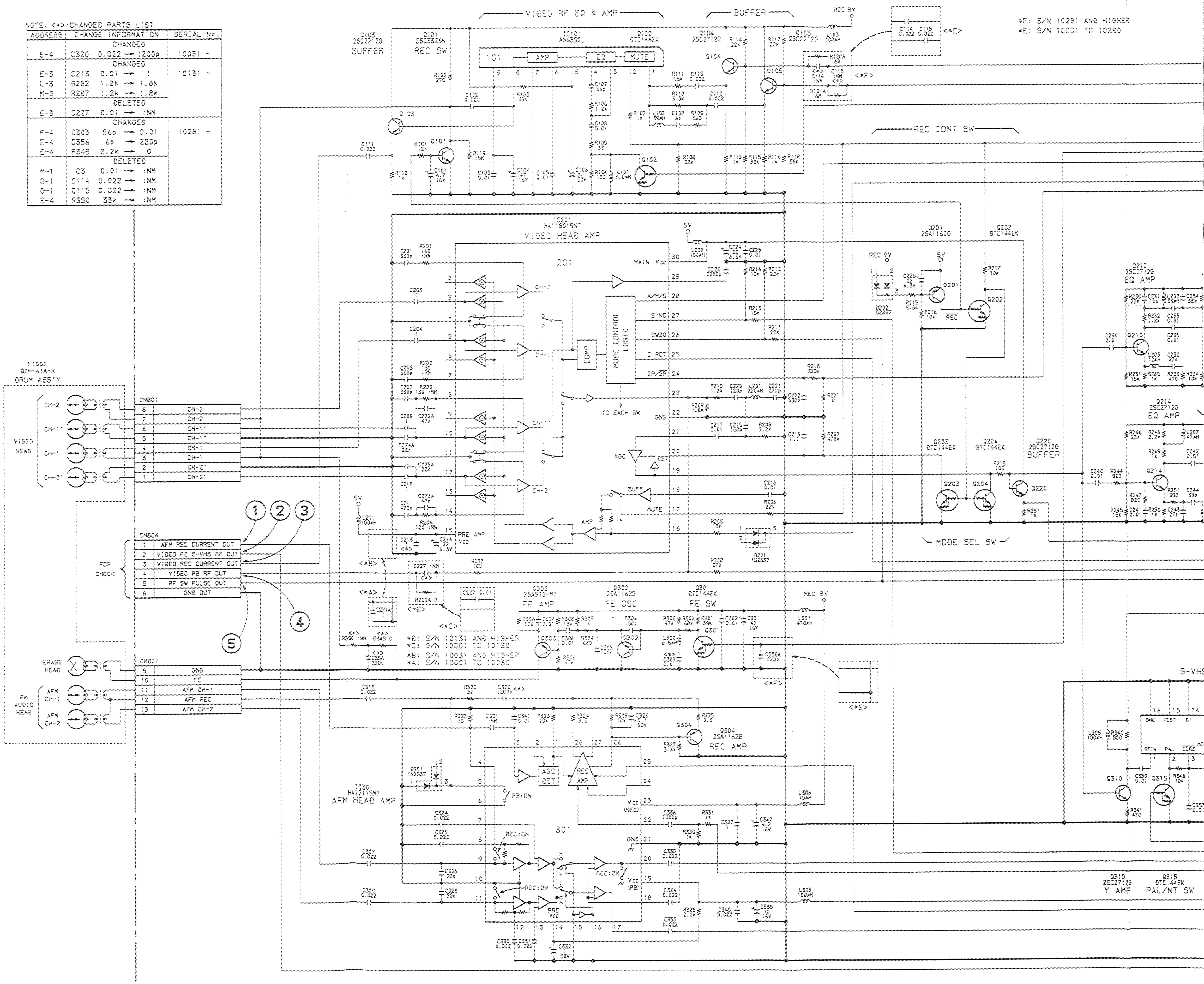
⑤ CN804 pin 5 (C-1) REC/PB mode

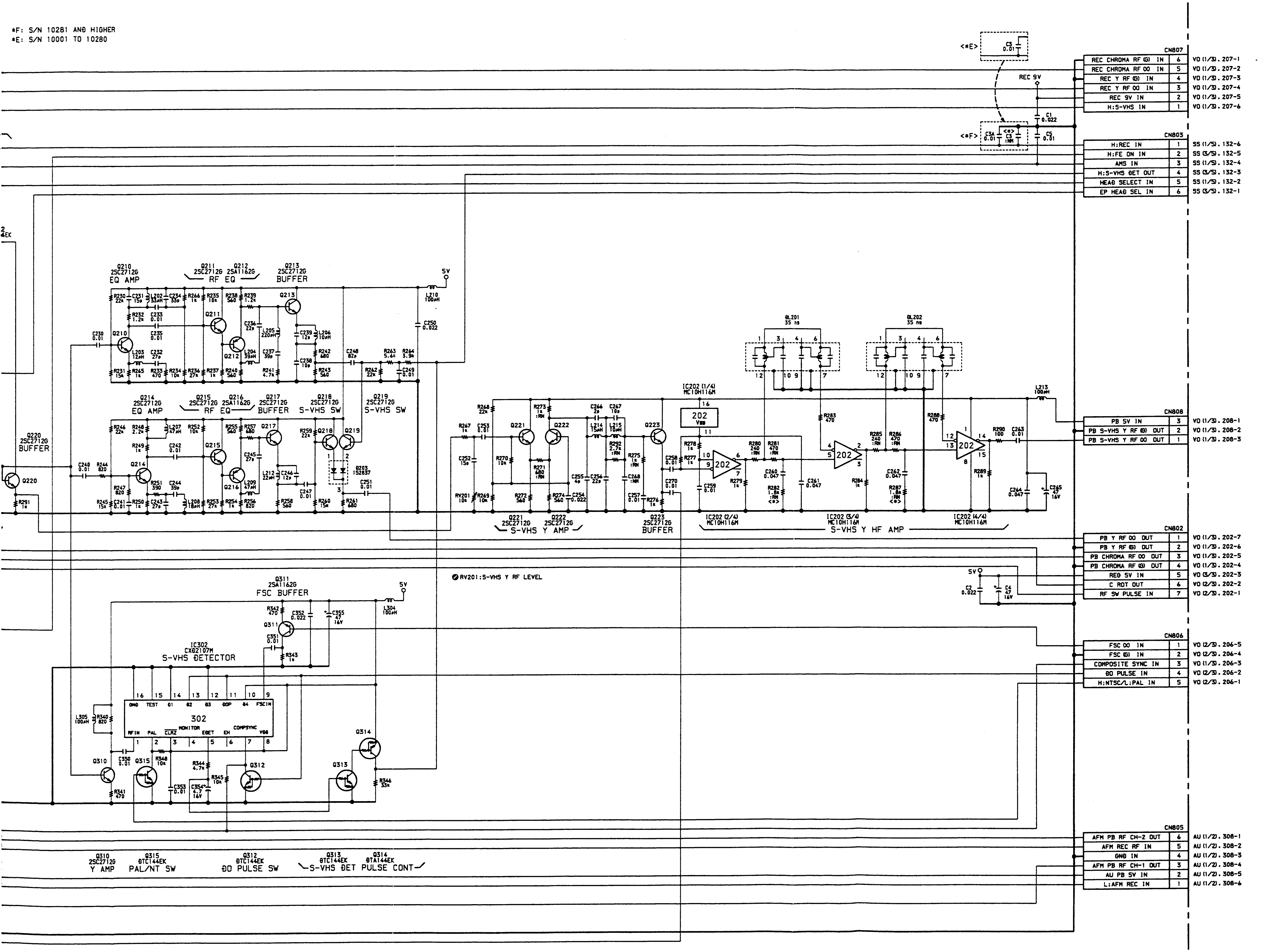


Measurement Condition
S-VIDEO IN: 75% color bars
REC mode: S-VHS
PB mode (S): KRV-45HPS
PB mode (N): KRV-45PS

NOTE: <*>:CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
E-4	C320 0.022 → 1200p	10031 ~
	CHANGED	
E-3	C213 0.01 → 1	10131 ~
L-3	R282 1.2k → 1.8k	
M-3	R287 1.2k → 1.8k	
	DELETED	
E-3	C227 0.01 → :NM	
	CHANGED	
F-4	C303 56p → 0.01	10281 ~
E-4	C356 6p → 220p	
E-4	R349 2.2k → 0	
	DELETED	
M-1	C3 0.01 → :NM	
G-1	C114 0.022 → :NM	
G-1	C115 0.022 → :NM	
E-4	R350 33k → :NM	


VIDEO RF EQ & AMP
BUFFER
REC 9V
Q103 2SC2712G BUFFER
Q101 2SC3326N REC SW
IC101 AN6352L
Q102 DTC144EK
Q104 2SC2712G
Q105 2SC2712G
101
AMP
EQ
MUTE
REC CONT SW
H1002 DZH-41A-R DRUM ASSY
VIDEO HEAD
CH-2
CH-1'
CH-1
CH-2'
CN801
ERASE HEAD
FM AUDIO HEAD
AFM CH-1
AFM CH-2
GND
FE
AFM REC
IC201 HA118015NT VIDEO HEAD AMP
201
MAIN Vcc
A/M/S
SYNC
SW30
C ROT
EP/SP
GND
TO EACH SW
AGC
DET
BUFF
MUTE
PRE AMP Vcc
COMP
MODE CONTROL LOGIC
CN804
1 AFM REC CURRENT OUT
2 VIDEO PB S-VHS RF OUT
3 VIDEO REC CURRENT OUT
4 VIDEO PB RF OUT
5 RF SW PULSE OUT
6 GND OUT
FOR CHECK
①
②
③
④
⑤
Q303 2SA812-M7 FE AMP
Q302 2SA1162G FE OSC
Q301 DTC144EK FE SW
*D: S/N 10131 AND HIGHER
*C: S/N 10001 TO 10130
*B: S/N 10031 AND HIGHER
*A: S/N 10001 TO 10030
<*A>
<*B>
<*C>
<*D>
<*E>
<*F>
*F: S/N 10281 AND HIGHER
*E: S/N 10001 TO 10280
Q201 2SA1162G
Q202 DTC144EK
Q203 DTC144EK
Q204 DTC144EK
Q220 2SC2712G BUFFER
MODE SEL SW
Q210 2SC2712G EQ AMP
Q214 2SC2712G EQ AMP
IC301 HA12175NP AFM HEAD AMP
301
AGC DET
REC AMP
PB:ON
REC:ON
PRE Vcc
Vcc (REC)
Vcc (PB)
Q304 2SA1162G REC AMP
Q310 2SC2712G Y AMP
Q315 DTC144EK PAL/NT SW
S-VHS

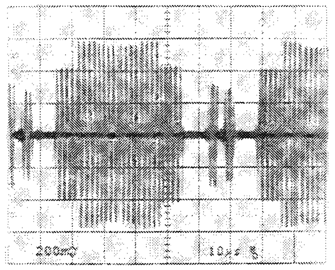

*F: S/N 10281 AND HIGHER
*E: S/N 10001 TO 10280
Q210 2SC2712G EQ AMP
Q211 2SC2712G Q212 2SA1162G RF EQ
Q213 2SC2712G BUFFER
Q214 2SC2712G EQ AMP
Q215 2SC2712G Q216 2SA1162G RF EQ
Q217 2SC2712G BUFFER
Q218 2SC2712G S-VHS SW
Q219 2SC2712G S-VHS SW
Q220 2SC2712G BUFFER
Q221 2SC2712G Q222 2SC2712G S-VHS Y AMP
Q223 2SC2712G BUFFER
IC202 (1/4) MC10H116M
IC202 (2/4) MC10H116M
IC202 (3/4) MC10H116M
IC202 (4/4) MC10H116M
S-VHS Y HF AMP
DL201 35 ns
DL202 35 ns
D203 1SS237
RV201:S-VHS Y RF LEVEL
Q311 2SA1162G FSC BUFFER
IC302 CXD2107M S-VHS DETECTOR
302
Q310 2SC2712G Y AMP
Q315 DTC144EK PAL/NT SW
Q312 DTC144EK DD PULSE SW
Q313 DTC144EK Q314 DTA144EK S-VHS DET PULSE CONT
5V
REC 9V
<*E>
<*F>
CN807
REC CHROMA RF (G) IN 6 VO (1/3). 207-1
REC CHROMA RF (X) IN 5 VO (1/3). 207-2
REC Y RF (G) IN 4 VO (1/3). 207-3
REC Y RF (X) IN 3 VO (1/3). 207-4
REC 9V IN 2 VO (1/3). 207-5
H:S-VHS IN 1 VO (1/3). 207-6
CN803
H:REC IN 1 SS (1/5). 132-6
H:FE ON IN 2 SS (3/5). 132-5
AMS IN 3 SS (1/5). 132-4
H:S-VHS DET OUT 4 SS (3/5). 132-3
HEAD SELECT IN 5 SS (1/5). 132-2
EP HEAD SEL IN 6 SS (3/5). 132-1
CN808
PB 5V IN 3 VO (1/3). 208-1
PB S-VHS Y RF (G) OUT 2 VO (1/3). 208-2
PB S-VHS Y RF (X) OUT 1 VO (1/3). 208-3
CN802
PB Y RF (X) OUT 1 VO (1/3). 202-7
PB Y RF (G) OUT 2 VO (1/3). 202-6
PB CHROMA RF (X) OUT 3 VO (1/3). 202-5
PB CHROMA RF (G) OUT 4 VO (1/3). 202-4
REG 5V IN 5 VO (3/3). 202-3
C ROT OUT 6 VO (2/3). 202-2
RF SW PULSE IN 7 VO (2/3). 202-1
CN806
FSC (X) IN 1 VO (2/3). 206-5
FSC (G) IN 2 VO (2/3). 206-4
COMPOSITE SYNC IN 3 VO (1/3). 206-3
DD PULSE IN 4 VO (2/3). 206-2
H:NTSC/L:PAL IN 5 VO (2/3). 206-1
CN805
AFM PB RF CH-2 OUT 6 AU (1/2). 308-1
AFM REC RF IN 5 AU (1/2). 308-2
GND IN 4 AU (1/2). 308-3
AFM PB RF CH-1 OUT 3 AU (1/2). 308-4
AU PB 5V IN 2 AU (1/2). 308-5
L:AFM REC IN 1 AU (1/2). 308-6
1
2
3
4
5
H
I
J
K
L
M
N
O
P

RP-62A

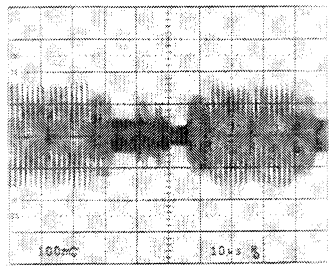
1-641-587-12 (1)
SVO-9500MDP

CR-39 (1/3); CHROMA PROCESS & CHROMA OUTPUT

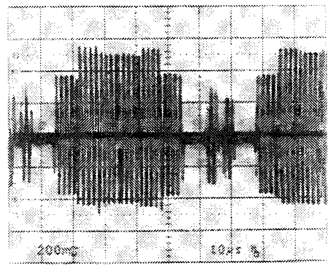
① TP607 (E-3*) STOP (E-E) mode



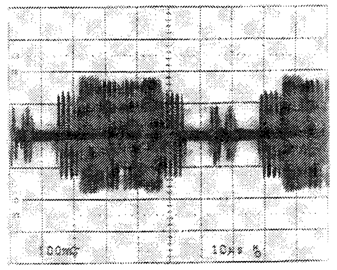
TP607 (E-3*) PB mode



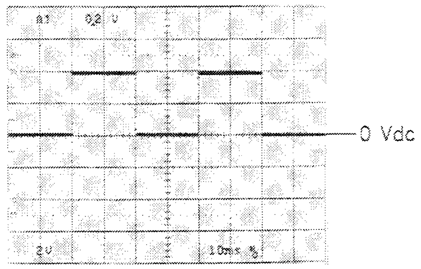
② TP601 (F-3*) STOP (E-E) mode



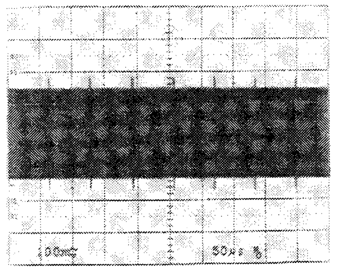
TP601 (F-3*) PB mode



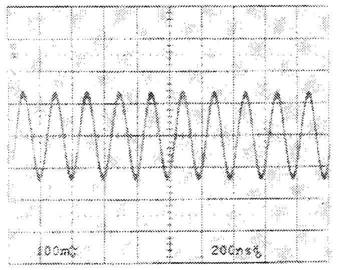
③ TP610 (G-3*) REC/PB mode



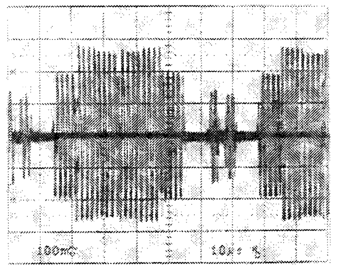
④ TP608 (D-3*)



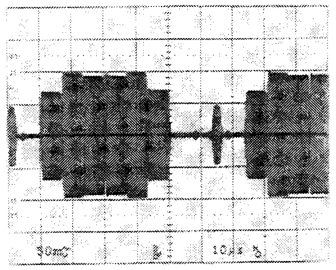
TP608 (D-3*) (fsc part)



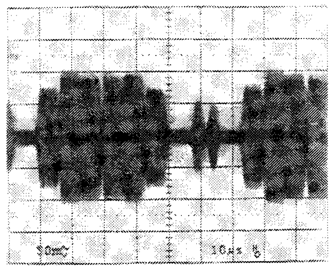
⑤ TP603 (G-3*) STOP (E-E) mode



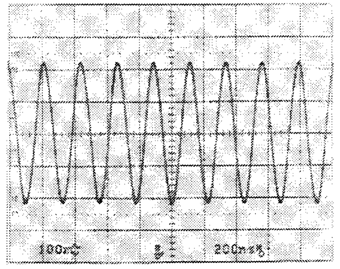
⑥ TP605 (F-3*) STOP (E-E) mode



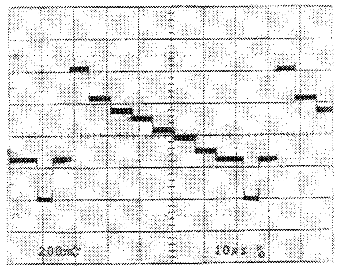
TP605 (F-3*) PB mode



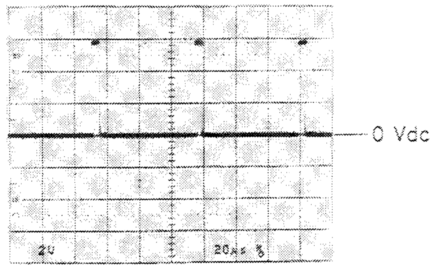
⑦ TP602 (F-2*)



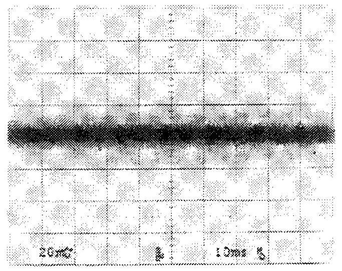
⑧ CN212 pin 18 (H-2*)
STOP (E-E) mode



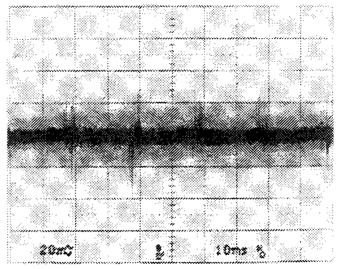
⑨ IC604 pin 4 (A-2*)



⑩ TP606 (E-2*) STOP (E-E) mode



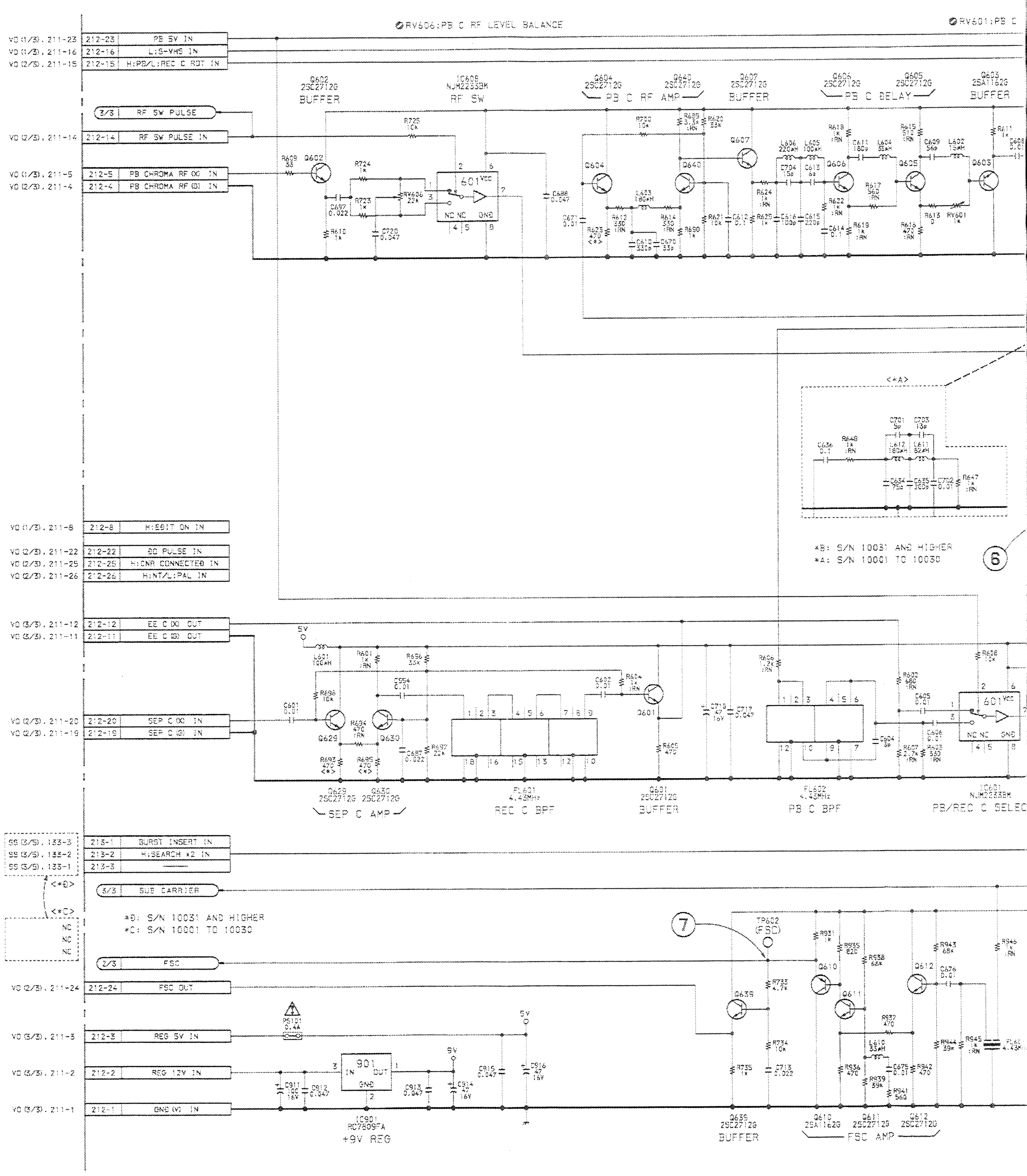
TP606 (E-2*) PB mode

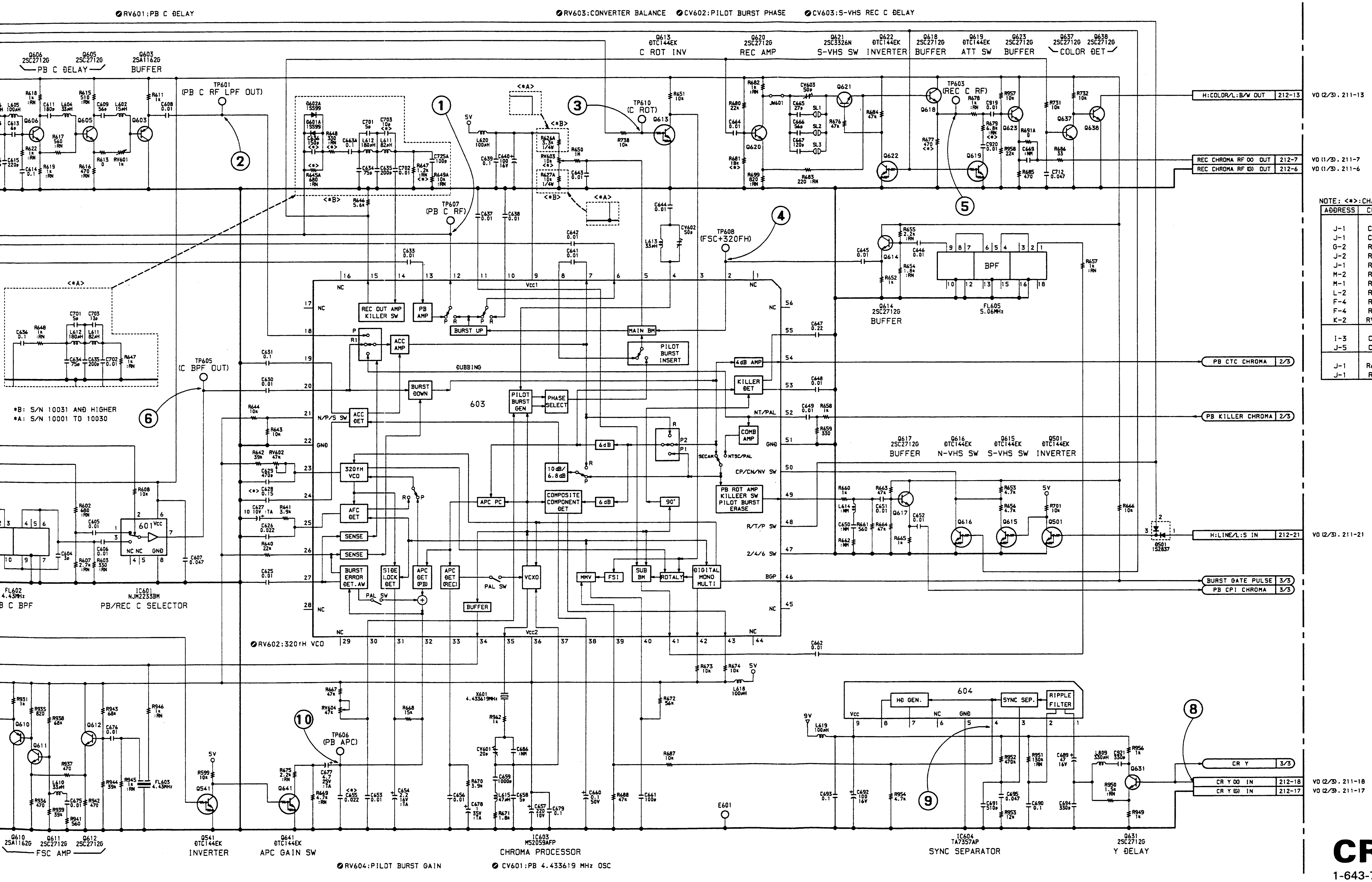


Measurement Condition
S-VIDEO IN: 75% color bars
STOP (E-E) mode: S-VHS
REC mode: S-VHS
PB mode: KRV-45HPS

* mark; B SIDE mount

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.


RV606: PB C RF LEVEL BALANCE
RV601: PB C
VD (1/3), 211-23 | 212-23 | PB 5V IN
VD (1/3), 211-16 | 212-16 | L:S-VHS IN
VD (2/3), 211-15 | 212-15 | H:PB/L:REC C ROT IN
3/3 RF SW PULSE
VD (2/3), 211-14 | 212-14 | RF SW PULSE IN
VD (1/3), 211-5 | 212-5 | PB CHROMA RF (X) IN
VD (2/3), 211-4 | 212-4 | PB CHROMA RF (G) IN
Q602 2SC2712G BUFFER
IC608 NJM2233BM RF SW
Q604 2SC2712G
Q640 2SC2712G
PB C RF AMP
Q607 2SC2712G BUFFER
Q606 2SC2712G
Q605 2SC2712G
PB C DELAY
Q603 2SA1162G BUFFER
VD (1/3), 211-8 | 212-8 | H:EDIT ON IN
VD (2/3), 211-22 | 212-22 | DD PULSE IN
VD (2/3), 211-25 | 212-25 | H:CNR CONNECTED IN
VD (2/3), 211-26 | 212-26 | H:NT/L:PAL IN
VD (3/3), 211-12 | 212-12 | EE C (X) OUT
VD (3/3), 211-11 | 212-11 | EE C (G) OUT
VD (2/3), 211-20 | 212-20 | SEP C (X) IN
VD (2/3), 211-19 | 212-19 | SEP C (G) IN
Q629 2SC2712G
Q630 2SC2712G
SEP C AMP
FL601 4.43MHz REC C BPF
Q601 2SC2712G BUFFER
FL602 4.43MHz PB C BPF
IC601 NJM2233BM PB/REC C SELEC
<*A>
*B: S/N 10031 AND HIGHER
*A: S/N 10001 TO 10030
⑥
SS (3/5), 133-3 | 213-1 | BURST INSERT IN
SS (3/5), 133-2 | 213-2 | H:SEARCH ×2 IN
SS (3/5), 133-1 | 213-3 | ——
<*D>
<*C>
3/3 SUB CARRIER
*D: S/N 10031 AND HIGHER
*C: S/N 10001 TO 10030
NC
NC
NC
2/3 FSC
VD (2/3), 211-24 | 212-24 | FSC OUT
VD (3/3), 211-3 | 212-3 | REG 5V IN
VD (3/3), 211-2 | 212-2 | REG 12V IN
VD (3/3), 211-1 | 212-1 | GND (V) IN
PS101 0.4A
IC901 RC7809FA +9V REG
5V
9V
⑦
TP602 (FSC)
Q639 2SC2712G BUFFER
Q610 2SA1162G
Q611 2SC2712G
Q612 2SC2712G
FSC AMP



●RV601:PB C DELAY
●RV603:CONVERTER BALANCE
●CV602:PILOT BURST PHASE
●CV603:S-VHS REC C DELAY
Q606 2SC2712G
Q605 2SC2712G
PB C DELAY
Q603 2SA1162G BUFFER
TP601 (PB C RF LPF OUT)
Q613 DTC144EK C ROT INV
Q620 2SC2712G REC AMP
Q621 2SC3326N
Q622 DTC144EK
S-VHS SW
INVERTER
Q618 2SC2712G BUFFER
Q619 DTC144EK ATT SW
Q623 2SC2712G BUFFER
Q637 2SC2712G
Q638 2SC2712G
COLOR DET
TP610 (C ROT)
TP603 (REC C RF)
TP607 (PB C RF)
TP608 (FSC+320FH)
TP605 (C BPF OUT)
TP606 (PB APC)
H:COLOR/L:B/W OUT 212-13
VO (2/3). 211-13
REC CHROMA RF (O) OUT 212-7
REC CHROMA RF (G) OUT 212-6
VO (1/3). 211-7
VO (1/3). 211-6
Q614 2SC2712G BUFFER
BPF
FL605 5.06MHz
*B: S/N 10031 AND HIGHER
*A: S/N 10001 TO 10030
REC OUT AMP KILLER SW
PB AMP
BURST UP
MAIN BM
PILOT BURST INSERT
ACC AMP
DUBBING
BURST DOWN
603
PILOT BURST GEN
PHASE SELECT
4dB AMP
KILLER DET
ACC DET
N/P/S SW
COMB AMP
6dB
320fH VCO
10dB/6.8dB
AFC DET
APC PC
COMPOSITE COMPONENT DET
90°
PB ROT AMP KILLEER SW PILOT BURST ERASE
SECAM
NTSC/PAL
NT/PAL
GND
CP/CN/NV SW
R/T/P SW
2/4/6 SW
BGP
SENSE
BURST ERROR DET.AW
SIDE LOCK DET
APC DET (PB)
APC DET (REC)
PAL SW
VCXO
MMV
FSI
SUB BM
ROTALY
DIGITAL MONO MULTI
BUFFER
Vcc1
Vcc2
NC
●RV602:320fH VCO
PB CTC CHROMA 2/3
PB KILLER CHROMA 2/3
Q617 2SC2712G BUFFER
Q616 DTC144EK N-VHS SW
Q615 DTC144EK S-VHS SW
Q501 DTC144EK INVERTER
H:LINE/L:S IN 212-21
VO (2/3). 211-21
D501 1SS357
BURST GATE PULSE 3/3
PB CPI CHROMA 3/3
601
FL602 4.43MHz
B C BPF
IC601 NJM2233BM
PB/REC C SELECTOR
604
HD GEN.
SYNC SEP.
RIPPLE FILTER
Vcc
GND
X601 4.433619MHz
CR Y 3/3
CR Y (O) IN 212-18
CR Y (G) IN 212-17
VO (2/3). 211-18
VO (2/3). 211-17
E601
Q610 2SA1162G
Q611 2SC2712G
Q612 2SC2712G
FSC AMP
Q541 DTC144EK INVERTER
Q641 DTC144EK APC GAIN SW
IC603 M52059AFP CHROMA PROCESSOR
IC604 TA7357AP SYNC SEPARATOR
Q631 2SC2712G Y DELAY
●RV604:PILOT BURST GAIN
● CV601:PB 4.433619 MHz OSC
FL603 4.43MHz
①
②
③
④
⑤
⑥
⑧
⑨
⑩

NOTE: <*>:CHANGED PARTS LIST

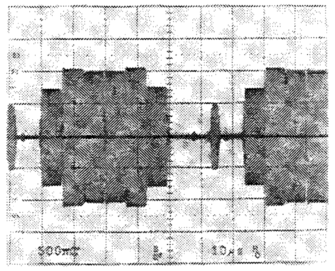
ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
J-1	C636 0.1 → 150p	10031 -
J-1	C703 13p → 10p	
G-2	R623 1k → 470	
J-2	R647 1k → 1.2k	
J-1	R648 1k → 680	
M-2	R677 1k → 470	
M-1	R679 3.3k → 6.8k	
L-2	R681 22k → 18k	
F-4	R693 1k → 470	
F-4	R695 1k → 470	
K-2	RV603 22k → 10k	
	CHANGED	
I-3	C628 0.1 → 0.15	10281 -
J-5	C655 0.01 → 0.022	
	CHANGED	
J-1	R645A 330 → 680	10481 -
J-1	R648 680 → 330	

CR-39 (1/3)

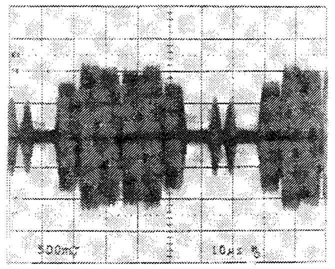
1-643-738-11 (1)
SVO-9500MDP

CR-39 (2/3); PB CROSSTALK CANCELER

① TP501 (B-3＊) STOP (E-E) mode
TP502 (B-2＊) STOP (E-E) mode



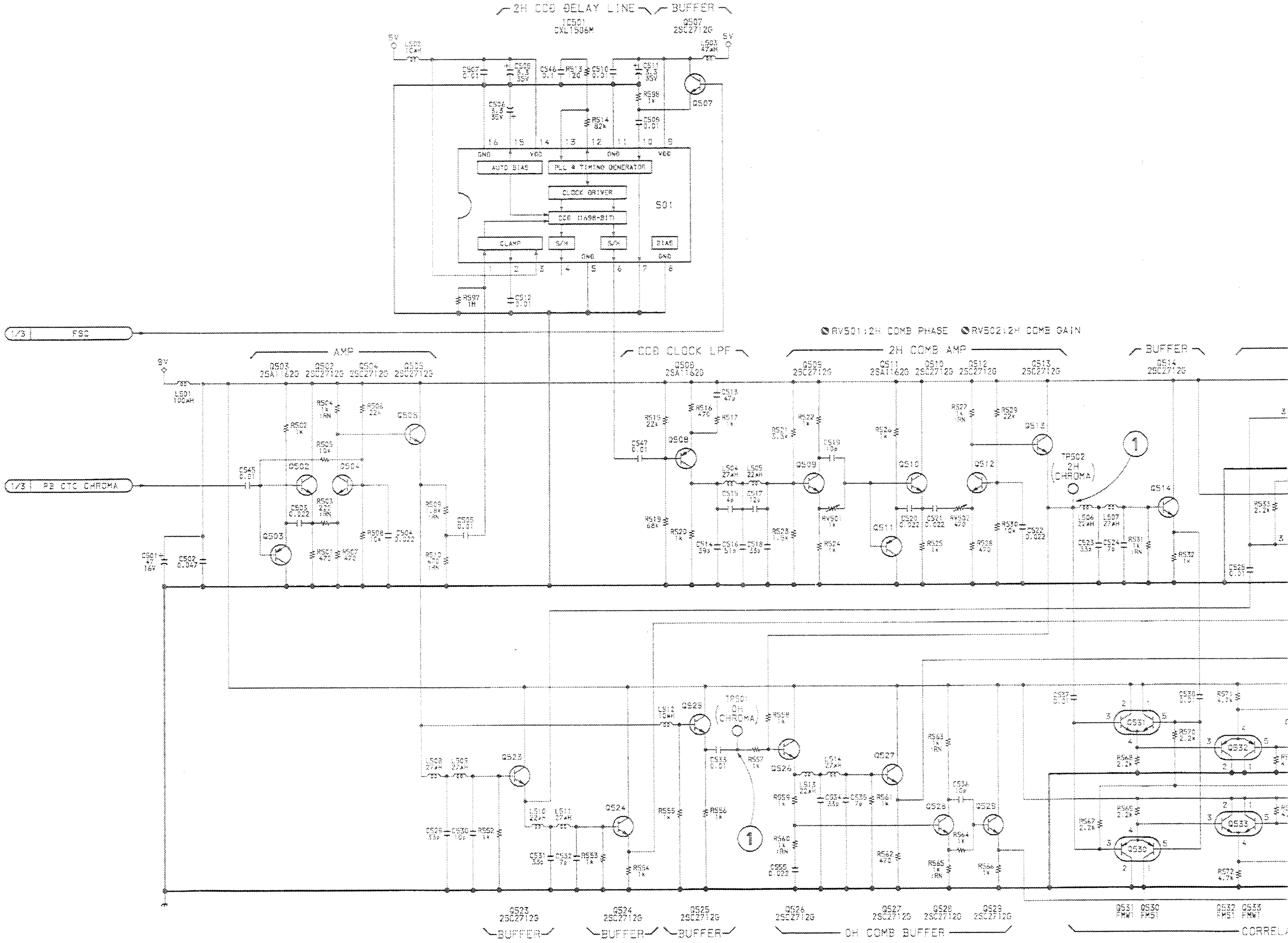
TP501 (B-3＊) PB mode
TP502 (B-2＊) PB mode

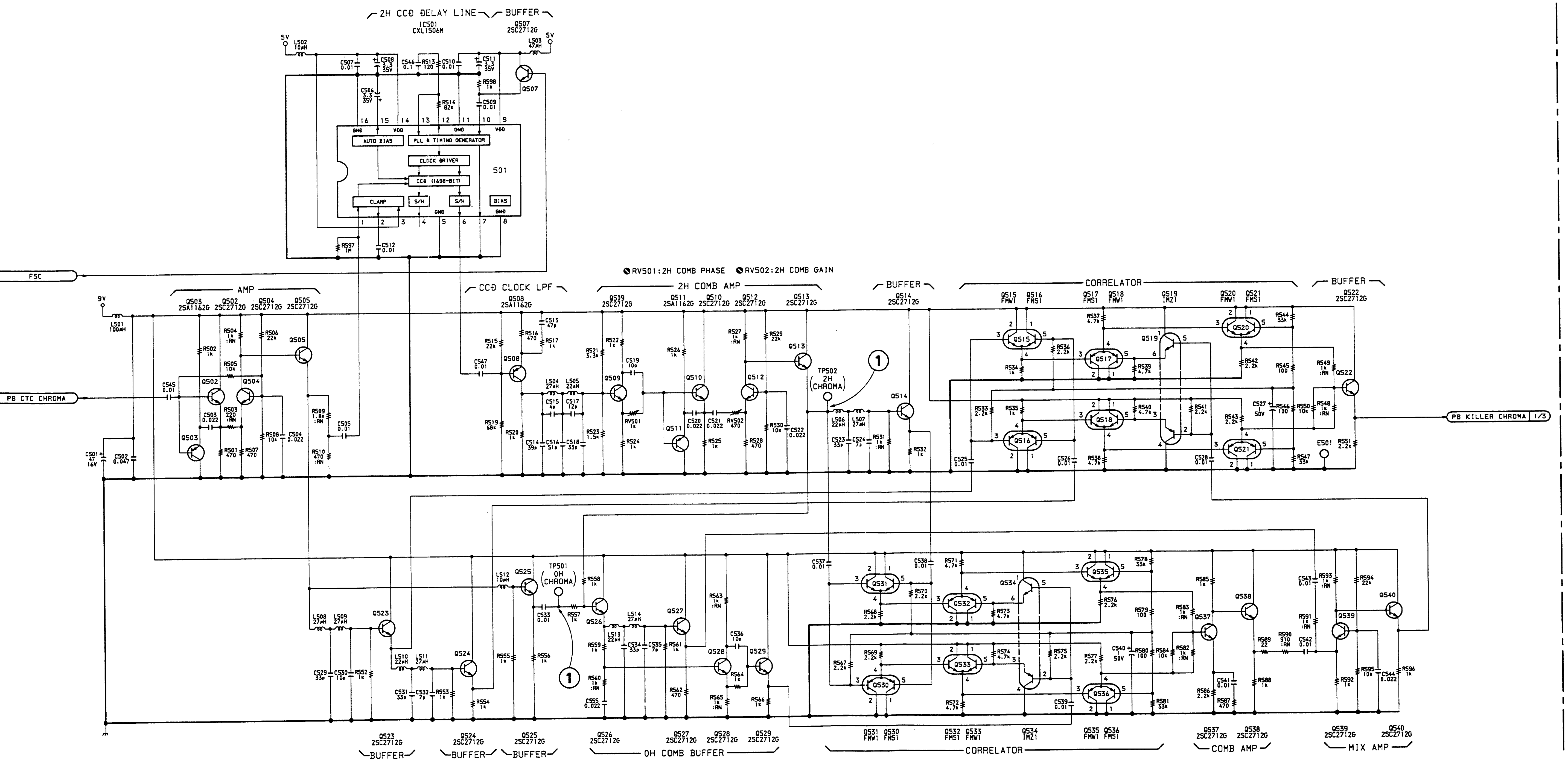


Measurement Condition

S-VIDEO IN: 75% color bars
STOP (E-E) mode: S-VHS
PB mode: KRV-45HPS

＊ mark: B SIDE mount


2H CCD DELAY LINE
IC501
CXL1506M
BUFFER
Q507
2SC2712G
5V
L502 10μH
L503 47μH
GND
VDD
AUTO BIAS
PLL & TIMING GENERATOR
CLOCK DRIVER
CCD (1698-BIT)
CLAMP
S/H
BIAS
501
1/3 FSC
1/3 PB CTC CHROMA
RV501: 2H COMB PHASE
RV502: 2H COMB GAIN
9V
L501 100μH
AMP
Q503 2SA1162G
Q502 2SC2712G
Q504 2SC2712G
Q505 2SC2712G
CCD CLOCK LPF
Q508 2SA1162G
2H COMB AMP
Q509 2SC2712G
Q511 2SA1162G
Q510 2SC2712G
Q512 2SC2712G
Q513 2SC2712G
BUFFER
Q514 2SC2712G
TP502 2H CHROMA
TP501 0H CHROMA
①
Q523 2SC2712G
BUFFER
Q524 2SC2712G
BUFFER
Q525 2SC2712G
BUFFER
Q526 2SC2712G
Q527 2SC2712G
Q528 2SC2712G
Q529 2SC2712G
0H COMB BUFFER
Q531 Q530 FMW1 FMS1
Q532 Q533 FMS1 FMW1
CORREL

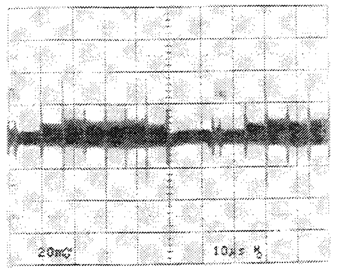

2H CCD DELAY LINE
IC501 CXL1506M
BUFFER
Q507 2SC2712G
5V
L502 10µH
L503 47µH
AUTO BIAS
PLL & TIMING GENERATOR
CLOCK DRIVER
CCD (1698-BIT)
CLAMP
S/H
BIAS
S01
FSC
9V
L501 100µH
AMP
Q503 2SA1162G
Q502 2SC2712G
Q504 2SC2712G
Q505 2SC2712G
PB CTC CHROMA
CCD CLOCK LPF
Q508 2SA1162G
RV501:2H COMB PHASE
RV502:2H COMB GAIN
2H COMB AMP
Q509 2SC2712G
Q511 2SA1162G
Q510 2SC2712G
Q512 2SC2712G
Q513 2SC2712G
TP502 2H (CHROMA)
①
BUFFER
Q514 2SC2712G
CORRELATOR
Q515 FMW1
Q516 FMS1
Q517 FMS1
Q518 FMW1
Q519 IMZ1
Q520 FMW1
Q521 FMS1
BUFFER
Q522 2SC2712G
PB KILLER CHROMA 1/3
E501
TP501 0H (CHROMA)
Q523 2SC2712G
BUFFER
Q524 2SC2712G
BUFFER
Q525 2SC2712G
BUFFER
Q526 2SC2712G
Q527 2SC2712G
Q528 2SC2712G
Q529 2SC2712G
0H COMB BUFFER
Q531 FMW1
Q530 FMS1
Q532 FMS1
Q533 FMW1
Q534 IMZ1
Q535 FMW1
Q536 FMS1
CORRELATOR
Q537 2SC2712G
Q538 2SC2712G
COMB AMP
Q539 2SC2712G
Q540 2SC2712G
MIX AMP

CR-39 (2/3)

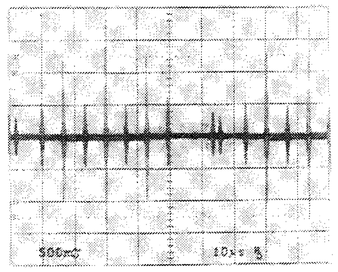
1-643-738-11 (1)
SVO-9500MDP

CR-39 (3/3) ; PB CHROMA OUTPUT

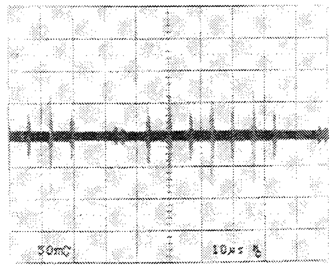
① TP801 (B-1＊) STOP (E-E) mode



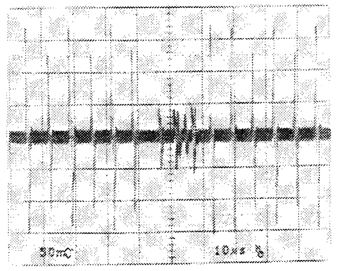
② TP820 (B-1＊) STOP (E-E) mode



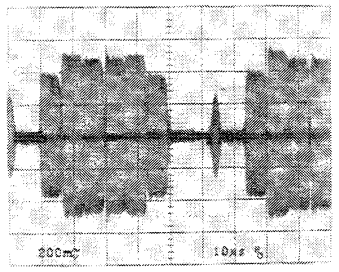
③ TP870 (E-1＊) STOP (E-E) mode



④ TP850 (E-1＊) STOP (E-E) mode

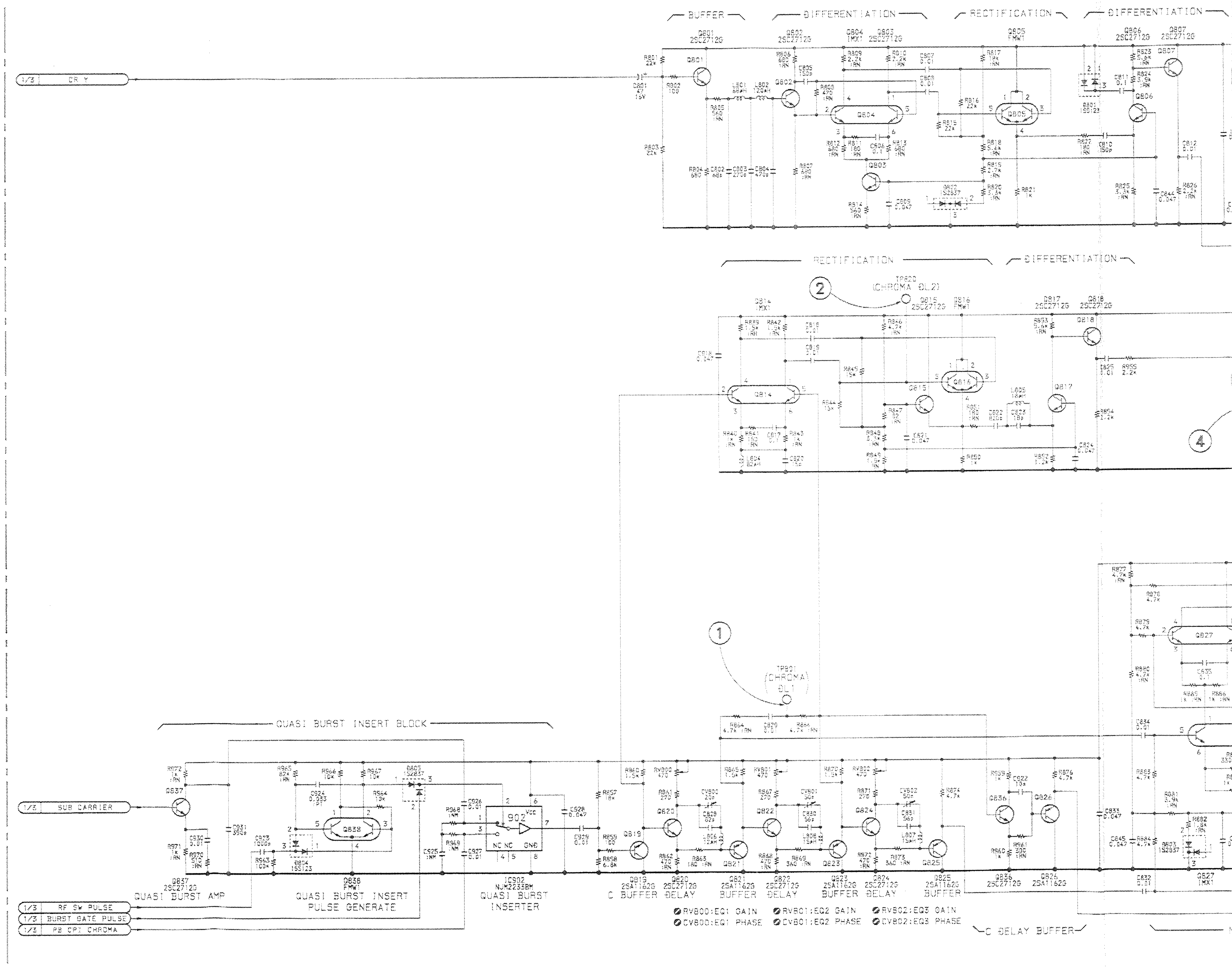


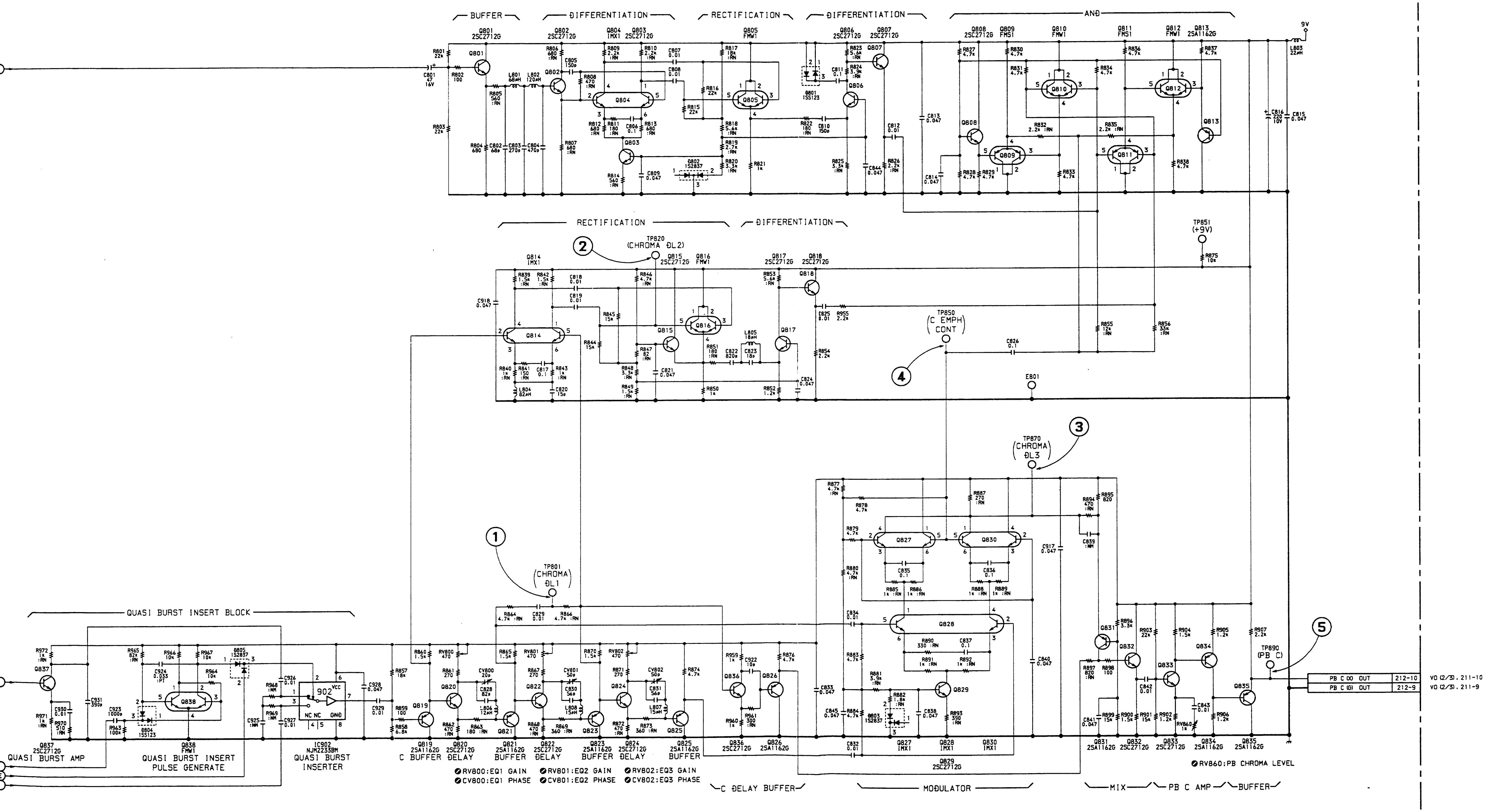
⑤ TP890 (E-1＊) PB mode



Measurement Condition
S-VIDEO IN : 75% color bars
STOP (E-E) mode : S-VHS
PB mode : KRV-45HPS

＊ mark ; B SIDE mount


CR-39 (3/3)
CR-39 (3/3)
1/3 CR Y
BUFFER
DIFFERENTIATION
RECTIFICATION
DIFFERENTIATION
Q801 2SC2712G
Q802 2SC2712G
Q804 IMX1
Q803 2SC2712G
Q805 FMW1
Q806 2SC2712G
Q807 2SC2712G
RECTIFICATION
DIFFERENTIATION
② TP820 (CHROMA DL2)
Q814 IMX1
Q815 2SC2712G
Q816 FMW1
Q817 2SC2712G
Q818 2SC2712G
④
① TP801 (CHROMA DL1)
QUASI BURST INSERT BLOCK
1/3 SUB CARRIER
1/3 RF SW PULSE
1/3 BURST GATE PULSE
1/3 PB CP1 CHROMA
Q837 2SC2712G QUASI BURST AMP
Q838 FMW1 QUASI BURST INSERT PULSE GENERATE
IC902 NJM2233BM QUASI BURST INSERTER
Q819 2SA1162G C BUFFER
Q820 2SC2712G DELAY
Q821 2SA1162G BUFFER
Q822 2SC2712G DELAY
Q823 2SA1162G BUFFER
Q824 2SC2712G DELAY
Q825 2SA1162G BUFFER
Q836 2SC2712G
Q826 2SA1162G
Q827 IMX1
RV800:EQ1 GAIN
CV800:EQ1 PHASE
RV801:EQ2 GAIN
CV801:EQ2 PHASE
RV802:EQ3 GAIN
CV802:EQ3 PHASE
C DELAY BUFFER


BUFFER
DIFFERENTIATION
RECTIFICATION
DIFFERENTIATION
AND
Q801 2SC2712G
Q802 2SC2712G
Q804 IMX1
Q803 2SC2712G
Q805 FMW1
Q806 2SC2712G
Q807 2SC2712G
Q808 2SC2712G
Q809 FMS1
Q810 FMW1
Q811 FMS1
Q812 FMW1
Q813 2SA1162G
9V
RECTIFICATION
DIFFERENTIATION
②
TP820 (CHROMA DL2)
Q814 IMX1
Q815 2SC2712G
Q816 FMW1
Q817 2SC2712G
Q818 2SC2712G
TP851 (+9V)
TP850 (C EMPH CONT)
④
E801
③
TP870 (CHROMA DL3)
①
TP801 (CHROMA DL1)
QUASI BURST INSERT BLOCK
Q837 2SC2712G QUASI BURST AMP
Q838 FMW1 QUASI BURST INSERT PULSE GENERATE
IC902 NJM2233BM QUASI BURST INSERTER
Q819 2SA1162G C BUFFER
Q820 2SC2712G DELAY
Q821 2SA1162G BUFFER
Q822 2SC2712G DELAY
Q823 2SA1162G BUFFER
Q824 2SC2712G DELAY
Q825 2SA1162G BUFFER
Q836 2SC2712G
Q826 2SA1162G
Q827 IMX1
Q828 IMX1
Q830 IMX1
Q829 2SC2712G
Q831 2SA1162G
Q832 2SC2712G
Q833 2SC2712G
Q834 2SA1162G
Q835 2SA1162G
⑤
TP890 (PB C)
PB C (O) OUT 212-10 VO (2/3). 211-10
PB C (G) OUT 212-9 VO (2/3). 211-9
⊘RV800:EQ1 GAIN ⊘RV801:EQ2 GAIN ⊘RV802:EQ3 GAIN
⊘CV800:EQ1 PHASE ⊘CV801:EQ2 PHASE ⊘CV802:EQ3 PHASE
⊘RV860:PB CHROMA LEVEL
C DELAY BUFFER
MODULATOR
MIX
PB C AMP
BUFFER

CR-39 (3/3)

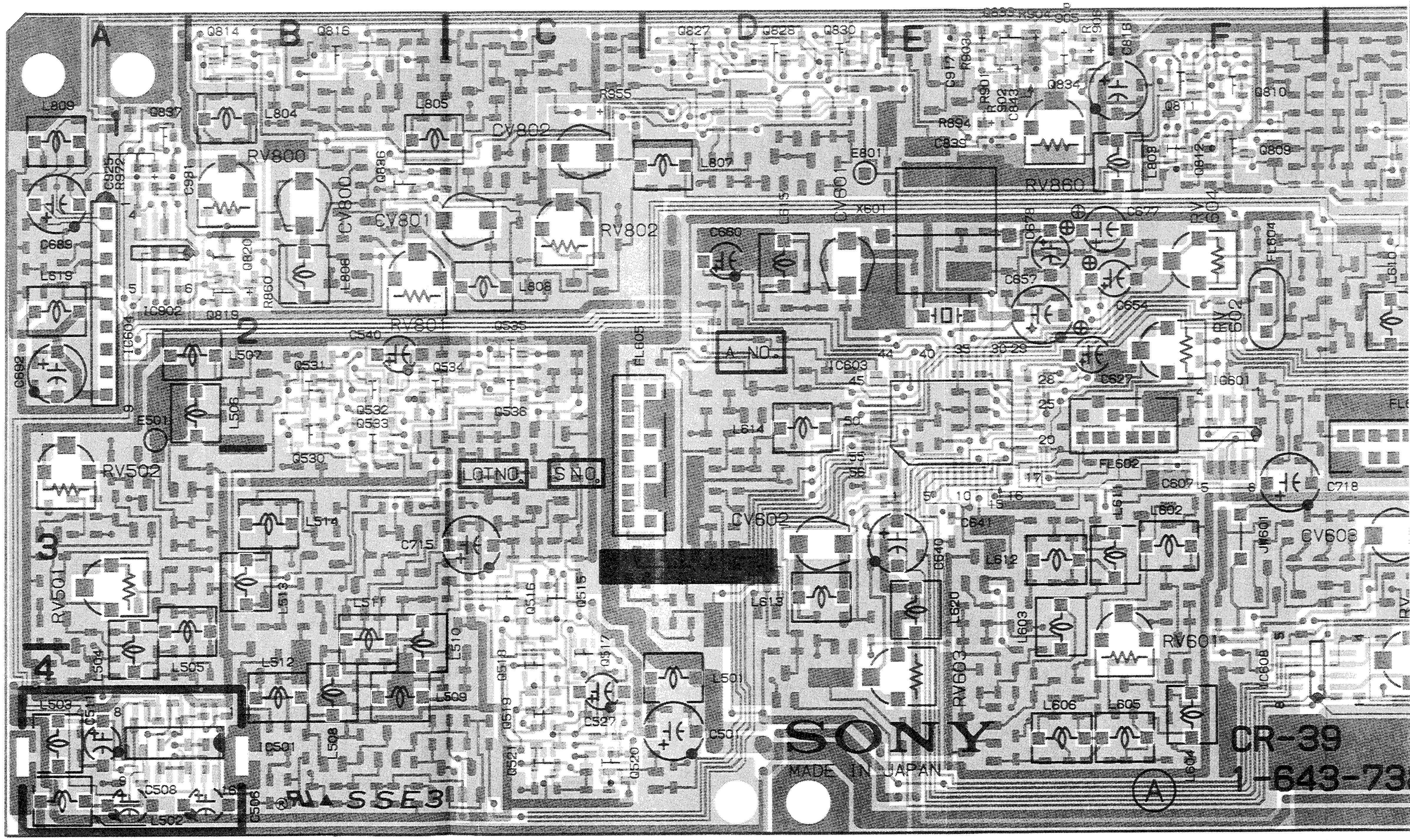
1-643-738-11 (1)
SVO-9500MDP

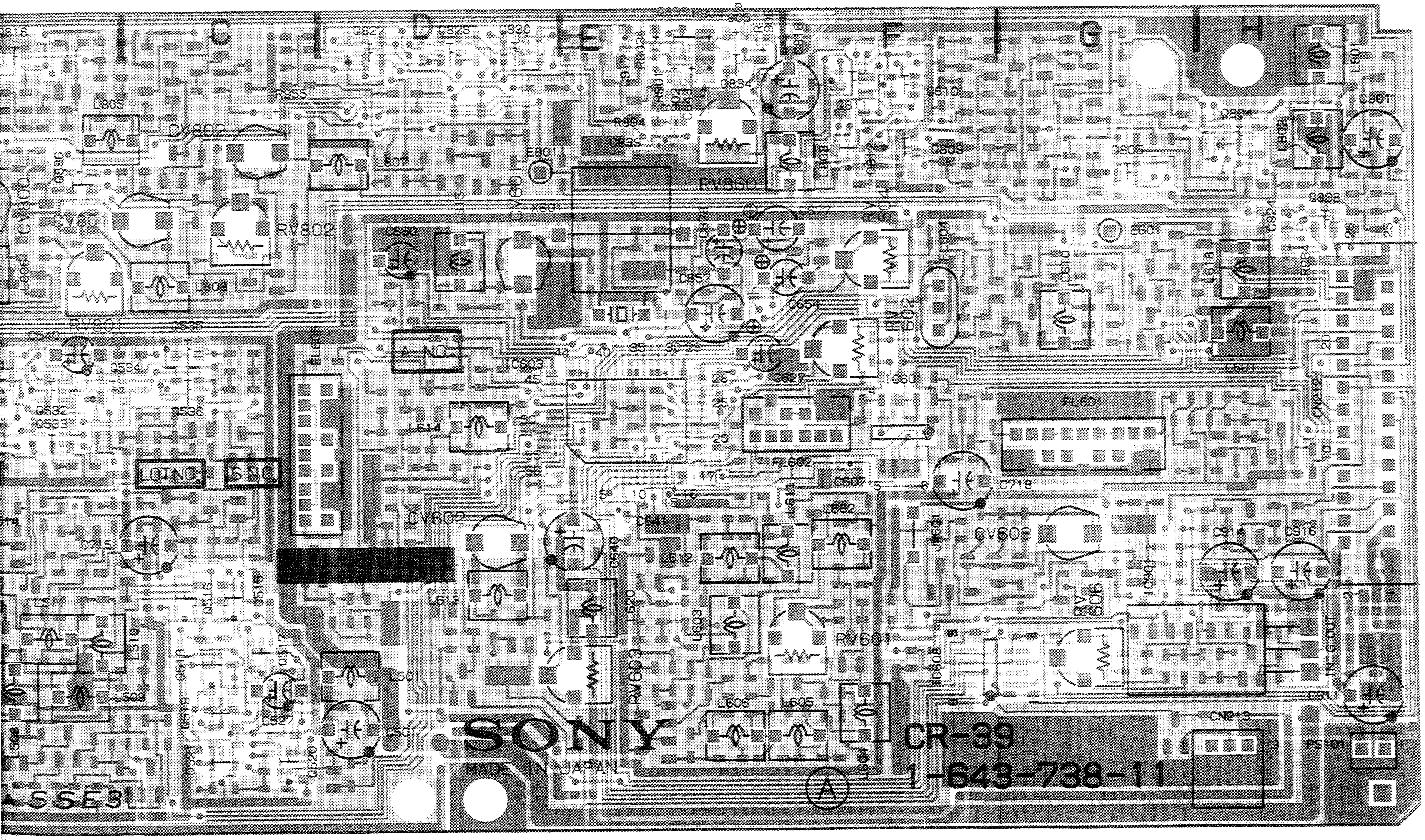
CR-39 ; CHROMA PROCESS

CR-39 (1-643-738-11)

CN212	H-2
CN213	H-4
CV601	D-1
CV602	D-3
CV603	F-3
CV800	B-1
CV801	B-1
CV802	C-1
D501	G-2 *
D801	G-1 *
D802	G-2 *
D803	D-1 *
D804	H-2 *
D805	B-2 *
E501	A-2
E601	G-2
E801	D-1
FL601	G-2
FL602	E-3
FL604	F-2
FL605	C-2
IC501	B-4
IC601	F-2
IC603	D-2
IC604	A-2
IC608	F-4
IC901	G-3
IC902	A-2
PS101	H-4
Q501	G-2 *
Q502	C-4 *
Q503	C-4 *
Q504	B-4 *
Q505	B-4 *
Q507	A-4 *
Q508	A-3 *
Q509	A-3 *
Q510	A-3 *
Q511	A-3 *
Q512	A-2 *
Q513	B-3 *
Q514	B-2 *
Q515	C-3
Q516	C-3
Q517	C-4
Q518	C-4
Q519	C-4
Q520	C-4
Q521	C-4
Q522	D-4 *
Q523	C-3 *
Q524	C-3 *
Q525	B-4 *
Q526	B-3 *
Q527	B-3 *
Q528	B-3 *
Q529	B-3 *
Q530	B-3
Q531	B-2
Q532	B-2
Q533	B-2
Q534	B-2
Q535	C-2
Q536	C-2
Q537	C-2 *
Q538	C-3 *
Q539	C-3 *
Q540	C-3 *
Q541	G-4 *
Q601	F-2 *
Q602	H-4 *
Q603	F-3 *
Q604	E-3 *
Q605	F-3 *
Q606	F-4 *
Q607	E-4 *
Q610	G-2 *
Q611	G-2 *
Q612	F-2 *
Q613	D-3 *
Q614	C-3 *
Q615	D-3 *
Q616	D-4 *
Q617	D-2 *
Q618	G-3 *
Q619	G-3 *
Q620	F-3 *
Q621	F-3 *
Q622	G-3 *
Q623	H-3 *
Q629	H-3 *
Q630	G-3 *
Q631	A-1 *
Q637	H-3 *
Q638	H-3 *
Q639	H-2 *
Q640	E-4 *
Q641	F-2 *
Q801	H-1 *
Q802	H-1 *
Q803	G-1 *
Q804	H-1
Q805	G-1
Q806	G-1 *
Q807	F-1 *
Q808	F-1 *
Q809	F-1
Q810	F-1
Q811	F-1
Q812	F-1
Q813	F-1 *
Q814	B-1
Q815	B-1 *
Q816	B-1
Q817	C-1 *
Q818	C-1 *
Q819	B-2
Q820	B-2
Q821	B-2 *
Q822	B-1 *
Q823	C-2 *
Q824	C-2 *
Q825	D-2 *
Q826	C-1 *
Q827	D-1
Q828	D-1
Q829	D-1 *
Q830	D-1
Q831	E-1 *
Q832	E-1 *
Q833	E-1
Q834	E-1
Q835	E-1 *
Q836	B-1
Q837	A-1
Q838	H-1
RV501	A-3
RV502	A-3
RV601	F-3
RV602	F-2
RV603	E-4
RV604	F-1
RV606	G-3
RV800	B-1
RV801	B-2
RV802	C-1
RV860	E-1
TP501	B-3 *
TP502	B-2 *
TP601	F-3 *
TP602	F-2 *
TP603	G-3 *
TP605	F-3 *
TP606	E-2 *
TP607	E-3 *
TP608	D-3 *
TP610	D-4 *
TP801	B-1 *
TP820	B-1 *
TP850	E-1 *
TP851	E-1 *
TP870	E-1 *
TP890	E-1 *
X601	D-1

* mark ; B SIDE mount


A
B
C
D
E
F
2
3
4
RV800
CV800
CV801
CV802
RV802
RV801
RV860
RV502
RV501
RV601
RV603
CV602
CV608
IC603
IC601
IC604
IC902
FL605
FL602
X601
LOT NO.
S NO.
A NO.
SONY
MADE IN JAPAN
CR-39
1-643-73


C
D
E
F
G
H
L805
CV802
RV802
CV801
CV800
L808
L807
RV801
R955
E801
X601
RV860
Q834
Q810
Q809
Q805
Q804
C801
L801
L802
Q888
E601
C924
C660
C657
C677
C654
C627
RV604
RV602
FL604
L610
L618
L601
CN212
FL605
A NO.
IC603
L614
IC601
FL602
FL601
C607
C718
LOT NO.
S NO.
C715
CV602
C641
L612
L602
CV608
C914
C916
IC901
RV606
L511
L510
L509
L613
L620
L603
RV601
L501
C527
C501
RV603
L606
L605
IC608
CN213
PS101
C811
SONY
MADE IN JAPAN
CR-39
1-643-738-11
A
SSE3

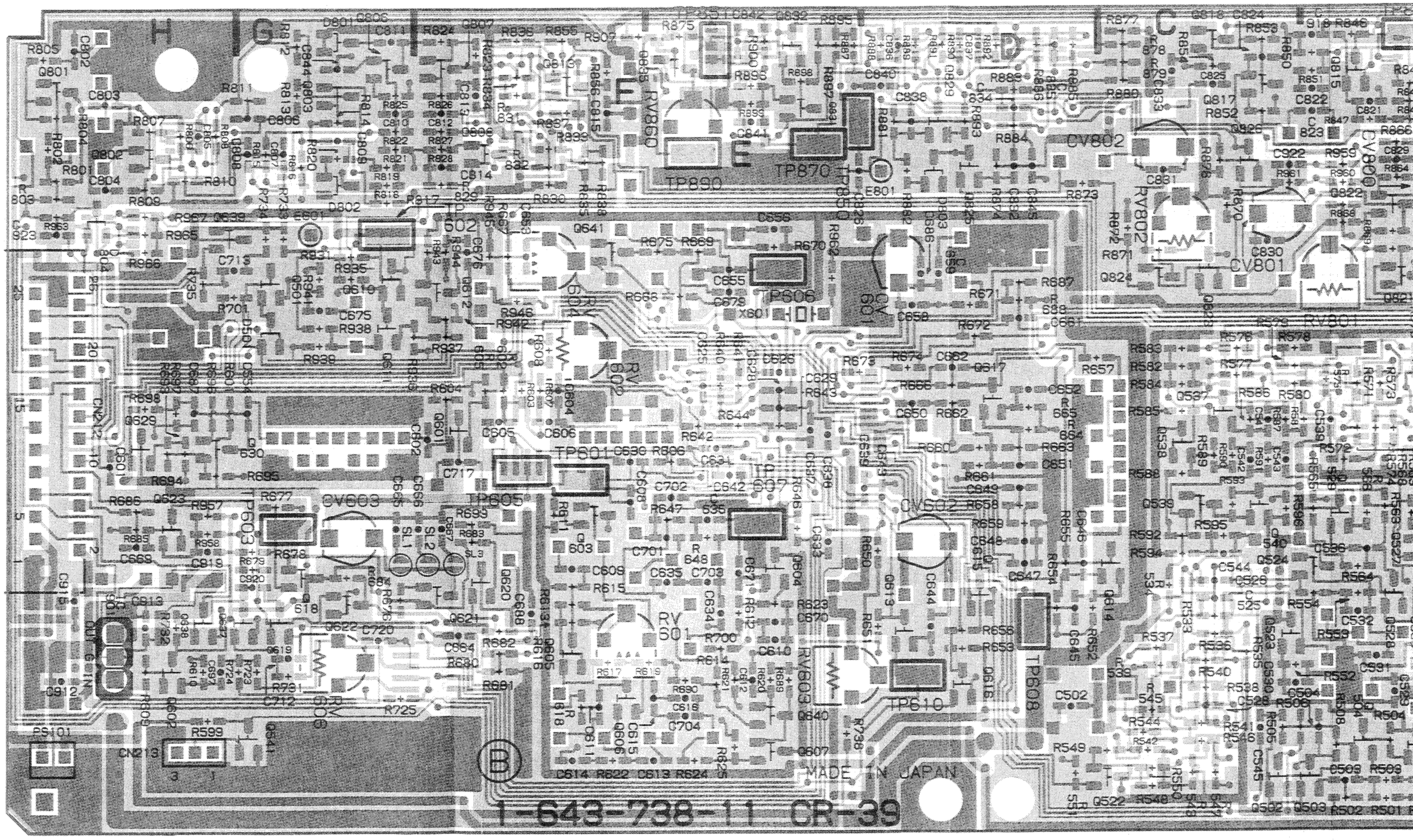
CR-39 — A SIDE —
1-643-738-11 (1)
SVO-9500MDP

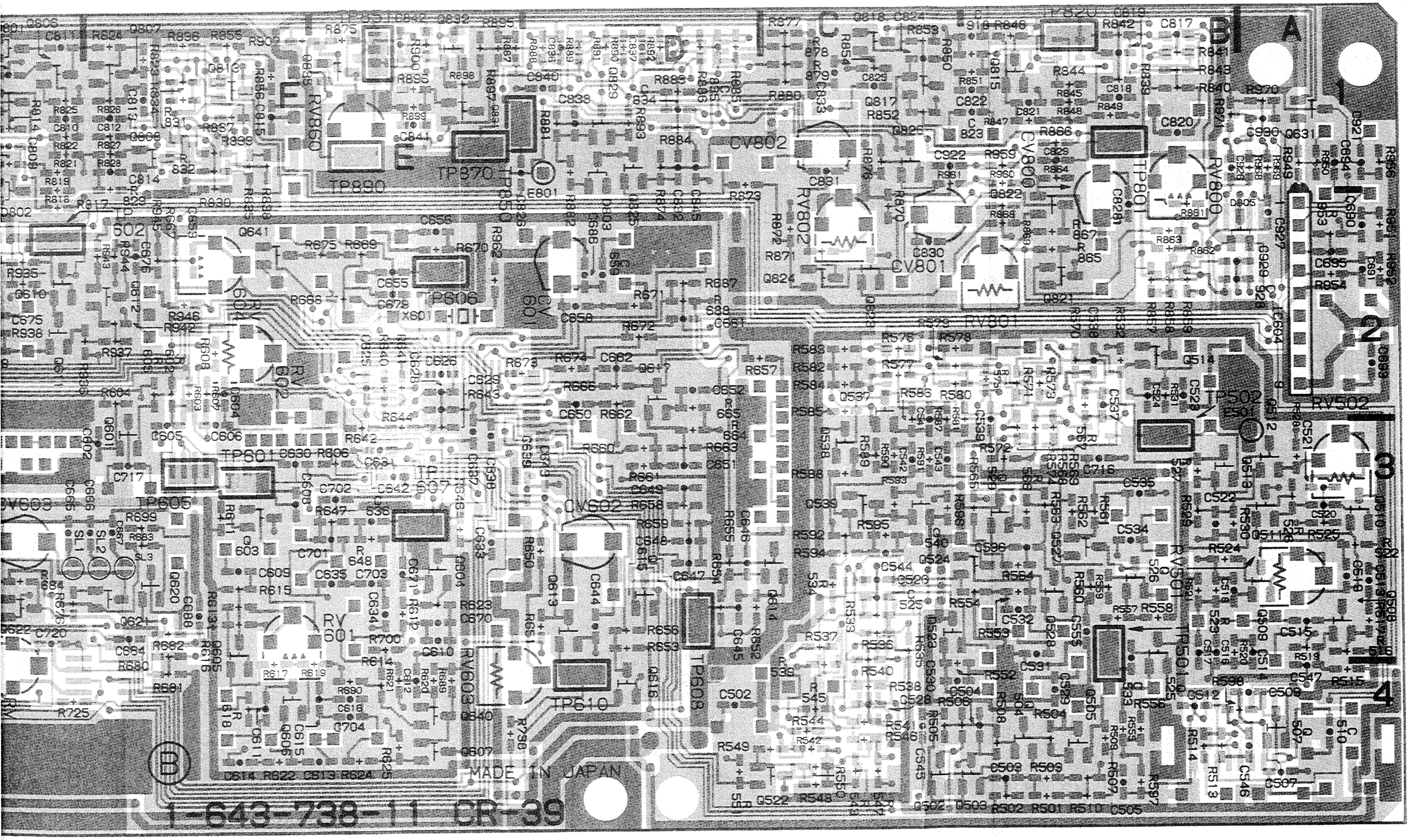
CR-39 ; CHROMA PROCESS

CR-39 (1-643-738-11)

CN212	H-2
CN213	H-4
CV601	D-1
CV602	D-3
CV603	F-3
CV800	B-1
CV801	B-1
CV802	C-1
D501	G-2 *
D801	G-1 *
D802	G-2 *
D803	D-1 *
D804	H-2 *
D805	B-2 *
E501	A-2
E601	G-2
E801	D-1
FL601	G-2
FL602	E-3
FL604	F-2
FL605	C-2
IC501	B-4
IC601	F-2
IC603	D-2
IC604	A-2
IC608	F-4
IC901	G-3
IC902	A-2
PS101	H-4
Q501	G-2 *
Q502	C-4 *
Q503	C-4 *
Q504	B-4 *
Q505	B-4 *
Q507	A-4 *
Q508	A-3 *
Q509	A-3 *
Q510	A-3 *
Q511	A-3 *
Q512	A-2 *
Q513	B-3 *
Q514	B-2 *
Q515	C-3
Q516	C-3
Q517	C-4
Q518	C-4
Q519	C-4
Q520	C-4
Q521	C-4
Q522	D-4 *
Q523	C-3 *
Q524	C-3 *
Q525	B-4 *
Q526	B-3 *
Q527	B-3 *
Q528	B-3 *
Q529	B-3 *
Q530	B-3
Q531	B-2
Q532	B-2
Q533	B-2
Q534	B-2
Q535	C-2
Q536	C-2
Q537	C-2 *
Q538	C-3 *
Q539	C-3 *
Q540	C-3 *
Q541	G-4 *
Q601	F-2 *
Q602	H-4 *
Q603	F-3 *
Q604	E-3 *
Q605	F-3 *
Q606	F-4 *
Q607	E-4 *
Q610	G-2 *
Q611	G-2 *
Q612	F-2 *
Q613	D-3 *
Q614	C-3 *
Q615	D-3 *
Q616	D-4 *
Q617	D-2 *
Q618	G-3 *
Q619	G-3 *
Q620	F-3 *
Q621	F-3 *
Q622	G-3 *
Q623	H-3 *
Q629	H-3 *
Q630	G-3 *
Q631	A-1 *
Q637	H-3 *
Q638	H-3 *
Q639	H-2 *
Q640	E-4 *
Q641	F-2 *
Q801	H-1 *
Q802	H-1 *
Q803	G-1 *
Q804	H-1
Q805	G-1
Q806	G-1 *
Q807	F-1 *
Q808	F-1 *
Q809	F-1
Q810	F-1
Q811	F-1
Q812	F-1
Q813	F-1 *
Q814	B-1
Q815	B-1 *
Q816	B-1
Q817	C-1 *
Q818	C-1 *
Q819	B-2
Q820	B-2
Q821	B-2 *
Q822	B-1 *
Q823	C-2 *
Q824	C-2 *
Q825	D-2 *
Q826	C-1 *
Q827	D-1
Q828	D-1
Q829	D-1 *
Q830	D-1
Q831	E-1 *
Q832	E-1 *
Q833	E-1
Q834	E-1
Q835	E-1 *
Q836	B-1
Q837	A-1
Q838	H-1
RV501	A-3
RV502	A-3
RV601	F-3
RV602	F-2
RV603	E-4
RV604	F-1
RV606	G-3
RV800	B-1
RV801	B-2
RV802	C-1
RV860	E-1
TP501	B-3 *
TP502	B-2 *
TP601	F-3 *
TP602	F-2 *
TP603	G-3 *
TP605	F-3 *
TP606	E-2 *
TP607	E-3 *
TP608	D-3 *
TP610	D-4 *
TP801	B-1 *
TP820	B-1 *
TP850	E-1 *
TP851	E-1 *
TP870	E-1 *
TP890	E-1 *
X601	D-1

* mark ; B SIDE mount




1-643-738-11 CR-39
MADE IN JAPAN
A
B
C
D
E
1
2
3
4
RV860
RV800
RV801
RV802
RV502
RV501
RV601
RV602
RV603
CV800
CV801
CV802
CV601
CV602
TP890
TP870
TP850
TP801
TP820
TP606
TP601
TP605
TP607
TP610
TP608
TP502
TP501

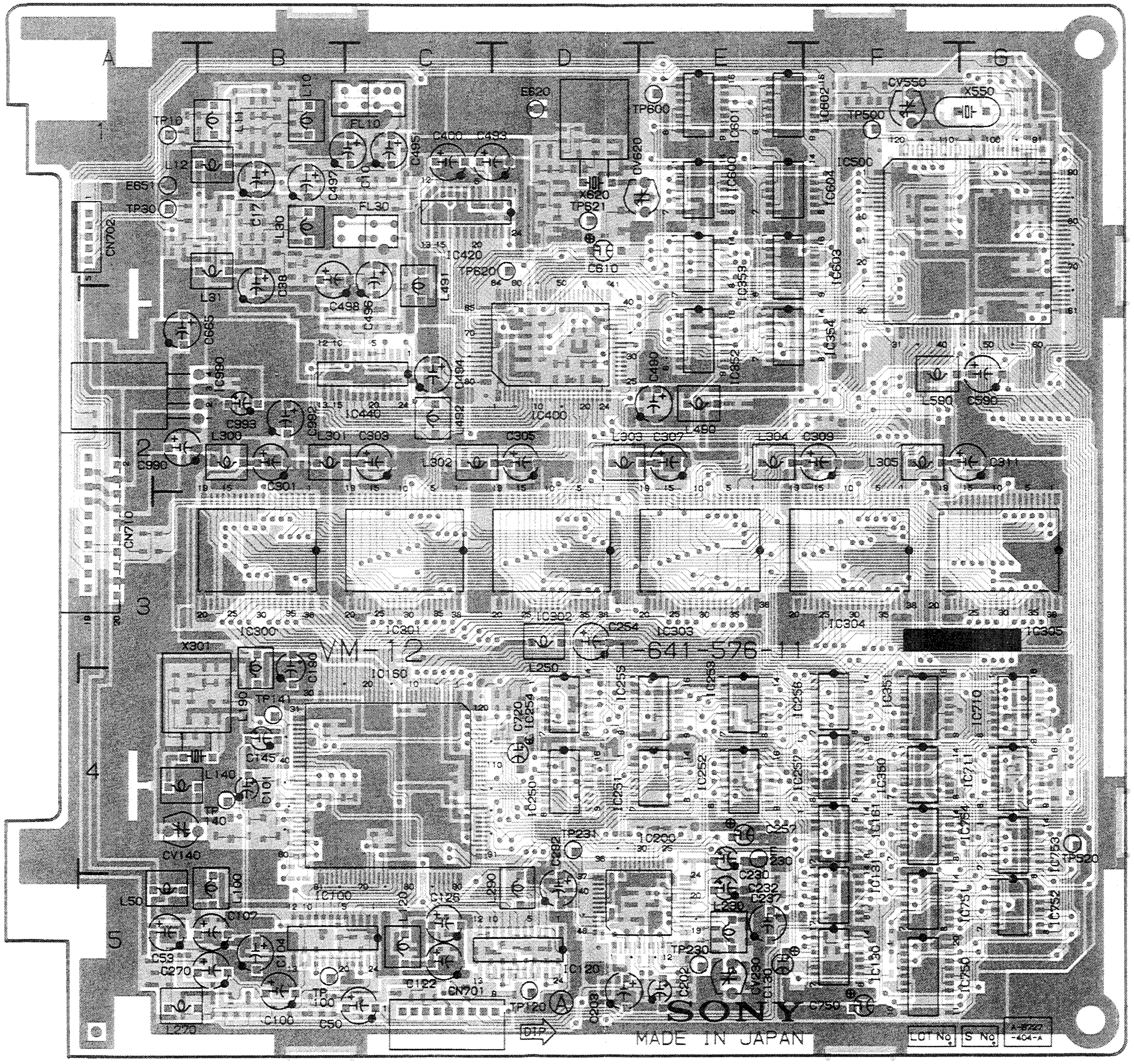
CR-39 — B SIDE —
1-643-738-11 (1)
SVO-9500MDP

VM-12P ; CHROMA NOISE REDUCER/VIDEO MEMORY/CHROMA ENCODER S/N UP TO 10030 (EK)

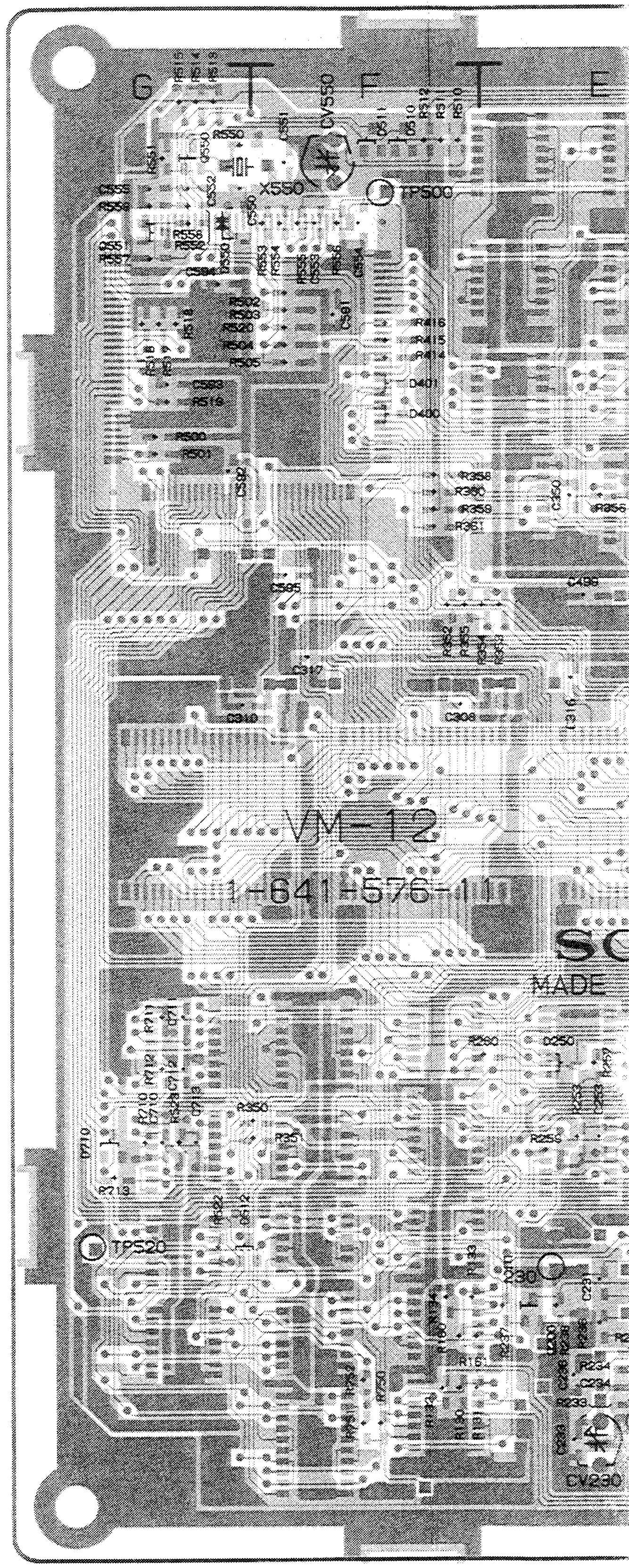
VM-12P (1-641-576-11, 12)

CN701	C-5
CN702	A-1
CN710	A-3
CV140	A-4
CV230	E-5
CV550	F-1
CV620	D-1
D140	B-4 *
D230	E-5 *
D250	E-4 *
D400	F-1 *
D401	F-1 *
D510	F-1 *
D511	F-1 *
D512	G-4 *
D620	D-1 *
D710	G-4 *
D720	C-4 *
E230	E-4
E620	D-1
E651	A-1
FL10	C-1
FL30	C-1
IC100	B-5
IC120	D-5
IC130	F-5
IC131	F-5
IC160	C-4
IC161	F-4
IC200	E-4
IC250	D-4
IC251	D-4
IC252	E-4
IC253	E-4
IC254	D-4
IC255	D-4
IC256	E-4
IC257	E-4
IC300	B-3
IC301	C-3
IC302	D-3
IC303	E-3
IC304	F-3
IC305	G-3
IC350	F-4
IC351	F-4
IC352	E-2
IC353	E-2
IC354	F-2
IC400	D-2
IC420	C-1
IC440	C-2
IC500	F-1
IC600	E-1
IC601	E-1
IC602	F-1
IC603	F-1
IC604	F-1
IC710	G-4
IC711	G-4
IC750	G-5
IC751	G-5
IC752	G-5
IC753	G-4
IC754	G-4
IC990	B-2
Q10	B-1 *
Q12	B-1 *
Q20	B-1 *
Q21	C-2 *
Q30	B-2 *
Q31	B-1 *
Q32	B-1 *
Q33	B-1 *
Q50	B-5 *
Q51	C-5 *
Q100	B-5 *
Q120	D-5 *
Q140	A-4 *
Q141	B-4 *
Q200	E-5 *
Q210	C-1 *
Q214	B-2 *
Q270	B-5 *
Q271	B-5 *
Q550	G-1 *
Q551	G-1 *
Q620	D-1 *
Q621	D-1 *
Q720	D-4 *
TP10	A-1
TP30	A-1
TP100	B-5
TP120	D-5
TP140	B-4
TP141	B-4
TP230	E-5
TP231	D-4
TP500	F-1
TP520	G-4
TP600	D-1
TP620	C-1
TP621	D-1
X301	A-3
X550	G-1
X620	D-1

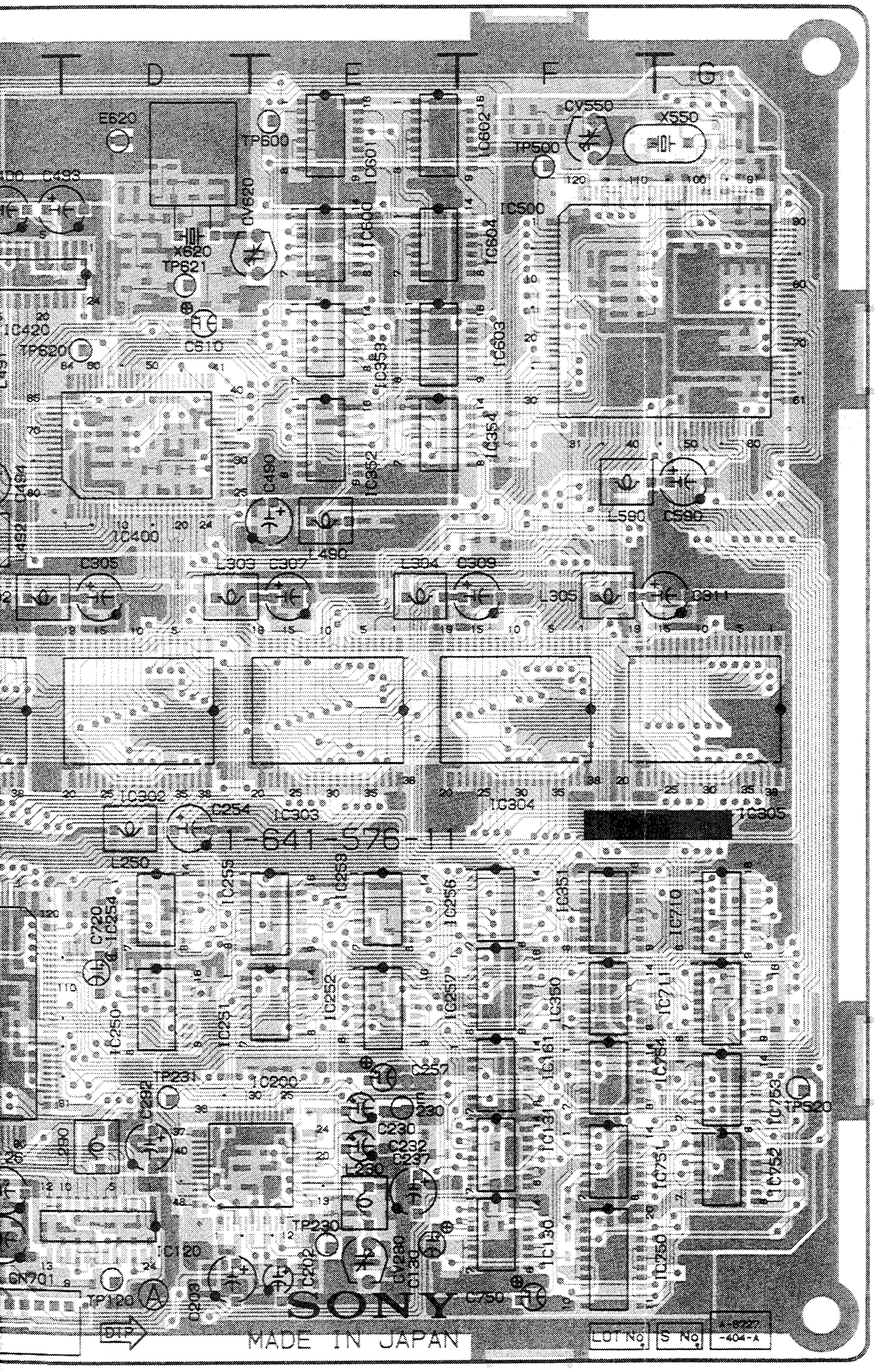
* mark ; B SIDE mount


A
B
C
D
E
F
G
1
2
3
4
5
VM-12
1-641-576-11
SONY
MADE IN JAPAN
LOT No.
S No.
CN702
CN710
CN701
IC400
IC160
IC300
IC301
IC302
IC303
IC304
IC305
IC500
X550
X301
TP10
TP30
TP500
TP520
TP600
TP620
TP621
CV140
CV550
CV620

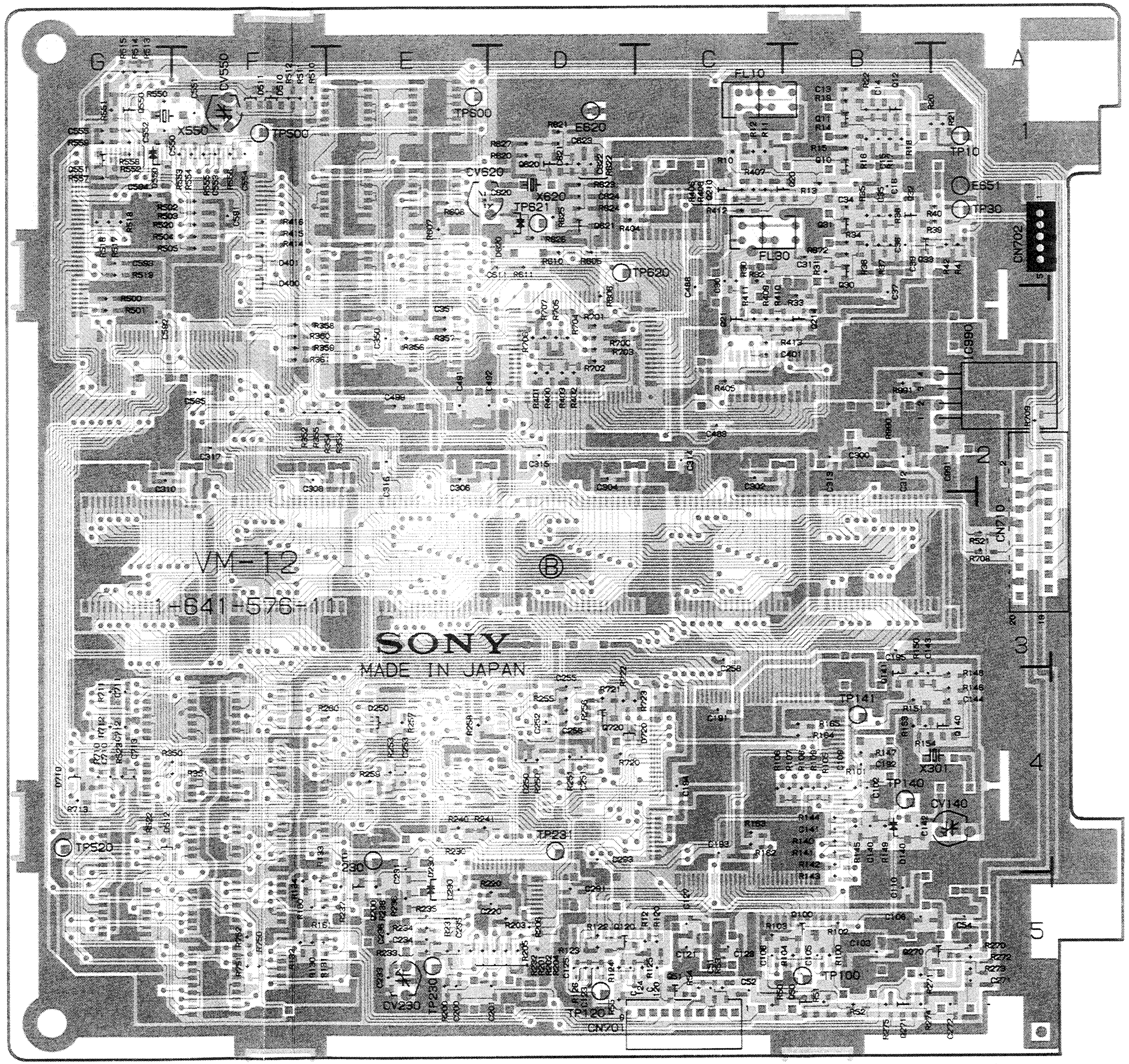
VM-12/P — A SIDE —
1-641-576-11 (1)
SVO-9500MD
SVO-9500MDP


G
F
E
X550
TP500
TP520
VM-12
1-641-576-11
CV550
CV230

(EK)


1-641-576-11
SONY
MADE IN JAPAN

VM-12/P — A SIDE —
1-641-576-11 (1)
SVO-9500MD
SVO-9500MDP


VM-12
1-641-576-11
SONY
MADE IN JAPAN

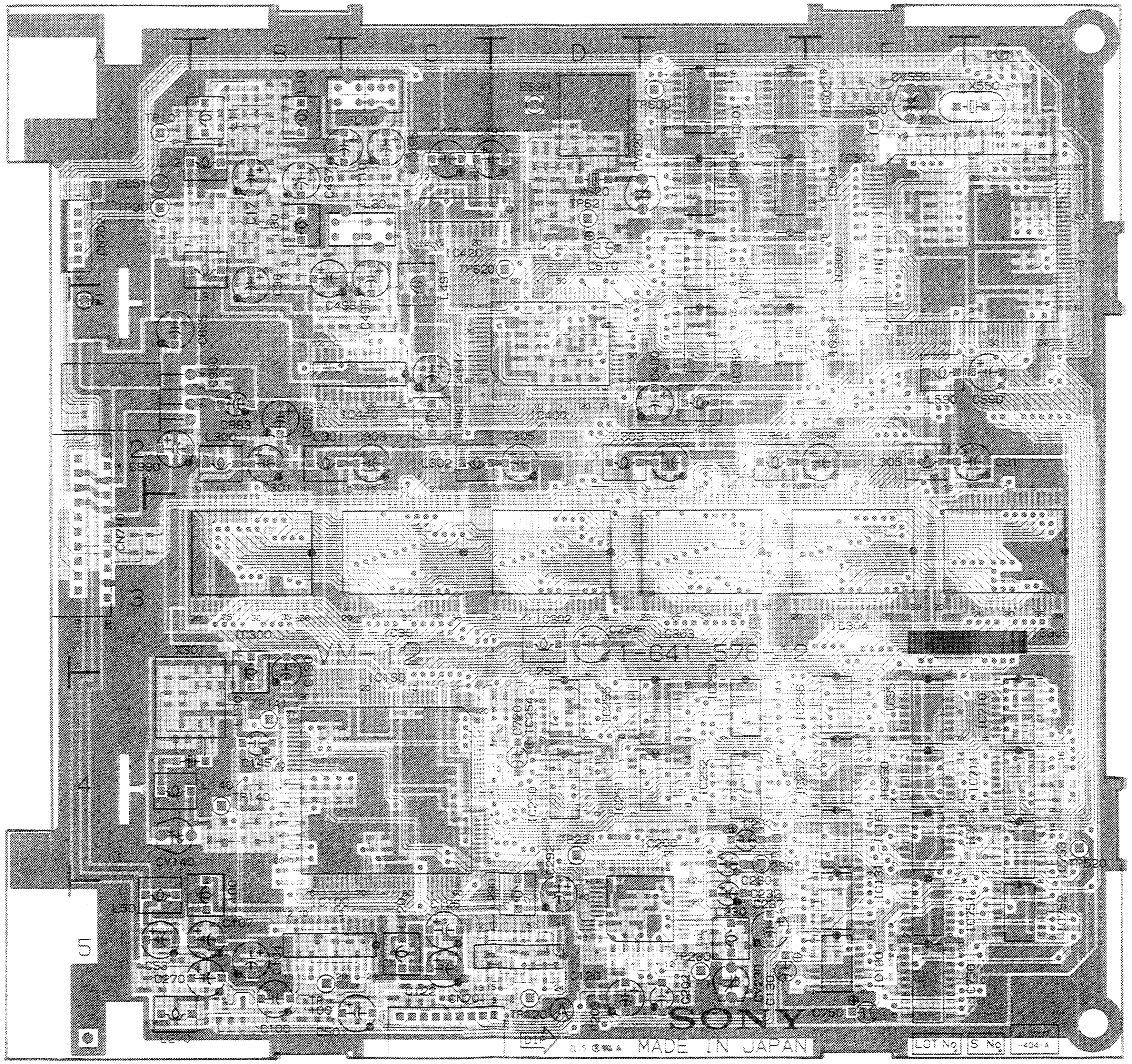
VM-12/P — B SIDE —
1-641-576-11 (1)
SVO-9500MD
SVO-9500MDP

VM-12P; CHROMA NOISE REDUCER/VIDEO MEMORY/CHROMA ENCODER S/N 10031 AND HIGHER (EK)

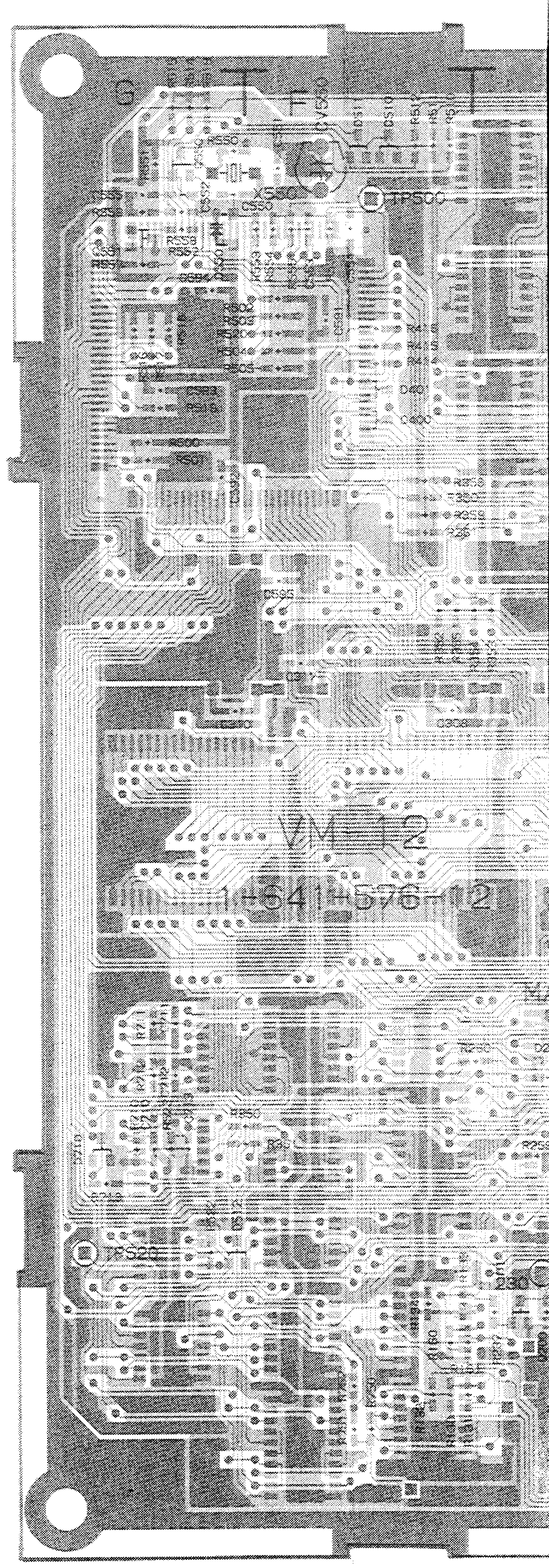
VM-12P (1-641-576-11, 12)

CN701	C-5
CN702	A-1
CN710	A-3
CV140	A-4
CV230	E-5
CV550	F-1
CV620	D-1
D140	B-4 *
D230	E-5 *
D250	E-4 *
D400	F-1 *
D401	F-1 *
D510	F-1 *
D511	F-1 *
D512	G-4 *
D620	D-1 *
D710	G-4 *
D720	C-4 *
E230	E-4
E620	D-1
E651	A-1
FL10	C-1
FL30	C-1
IC100	B-5
IC120	D-5
IC130	F-5
IC131	F-5
IC160	C-4
IC161	F-4
IC200	E-4
IC250	D-4
IC251	D-4
IC252	E-4
IC253	E-4
IC254	D-4
IC255	D-4
IC256	E-4
IC257	E-4
IC300	B-3
IC301	C-3
IC302	D-3
IC303	E-3
IC304	F-3
IC305	G-3
IC350	F-4
IC351	F-4
IC352	E-2
IC353	E-2
IC354	F-2
IC400	D-2
IC420	C-1
IC440	C-2
IC500	F-1
IC600	E-1
IC601	E-1
IC602	F-1
IC603	F-1
IC604	F-1
IC710	G-4
IC711	G-4
IC750	G-5
IC751	G-5
IC752	G-5
IC753	G-4
IC754	G-4
IC990	B-2
Q10	B-1 *
Q12	B-1 *
Q20	B-1 *
Q21	C-2 *
Q30	B-2 *
Q31	B-1 *
Q32	B-1 *
Q33	B-1 *
Q50	B-5 *
Q51	C-5 *
Q100	B-5 *
Q120	D-5 *
Q140	A-4 *
Q141	B-4 *
Q200	E-5 *
Q210	C-1 *
Q214	B-2 *
Q270	B-5 *
Q271	B-5 *
Q550	G-1 *
Q551	G-1 *
Q620	D-1 *
Q621	D-1 *
Q720	D-4 *
TP10	A-1
TP30	A-1
TP100	B-5
TP120	D-5
TP140	B-4
TP141	B-4
TP230	E-5
TP231	D-4
TP500	F-1
TP520	G-4
TP600	D-1
TP620	C-1
TP621	D-1
X301	A-3
X550	G-1
X620	D-1

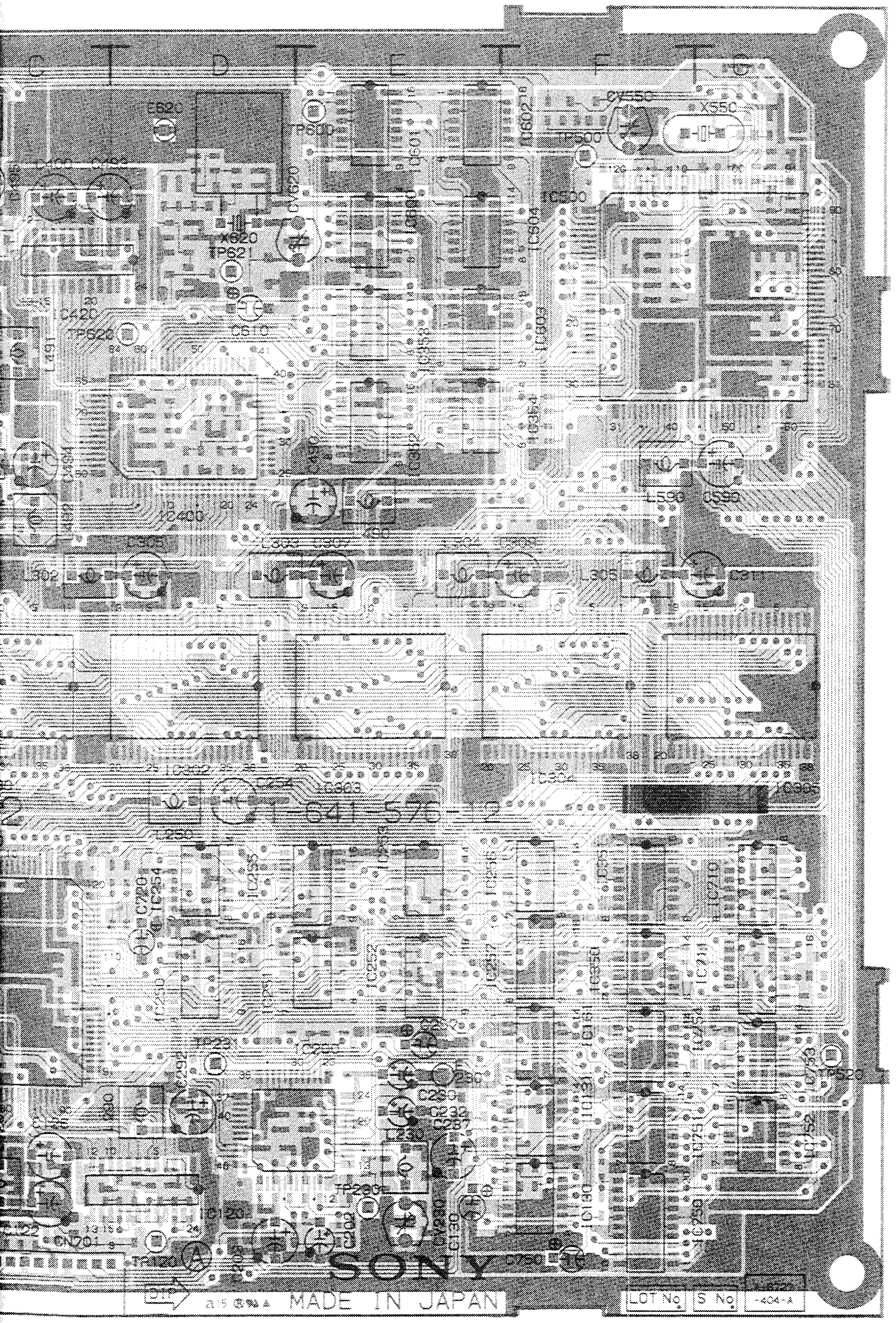
* mark; B SIDE mount



VM-12/P — A SIDE —
1-641-576-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

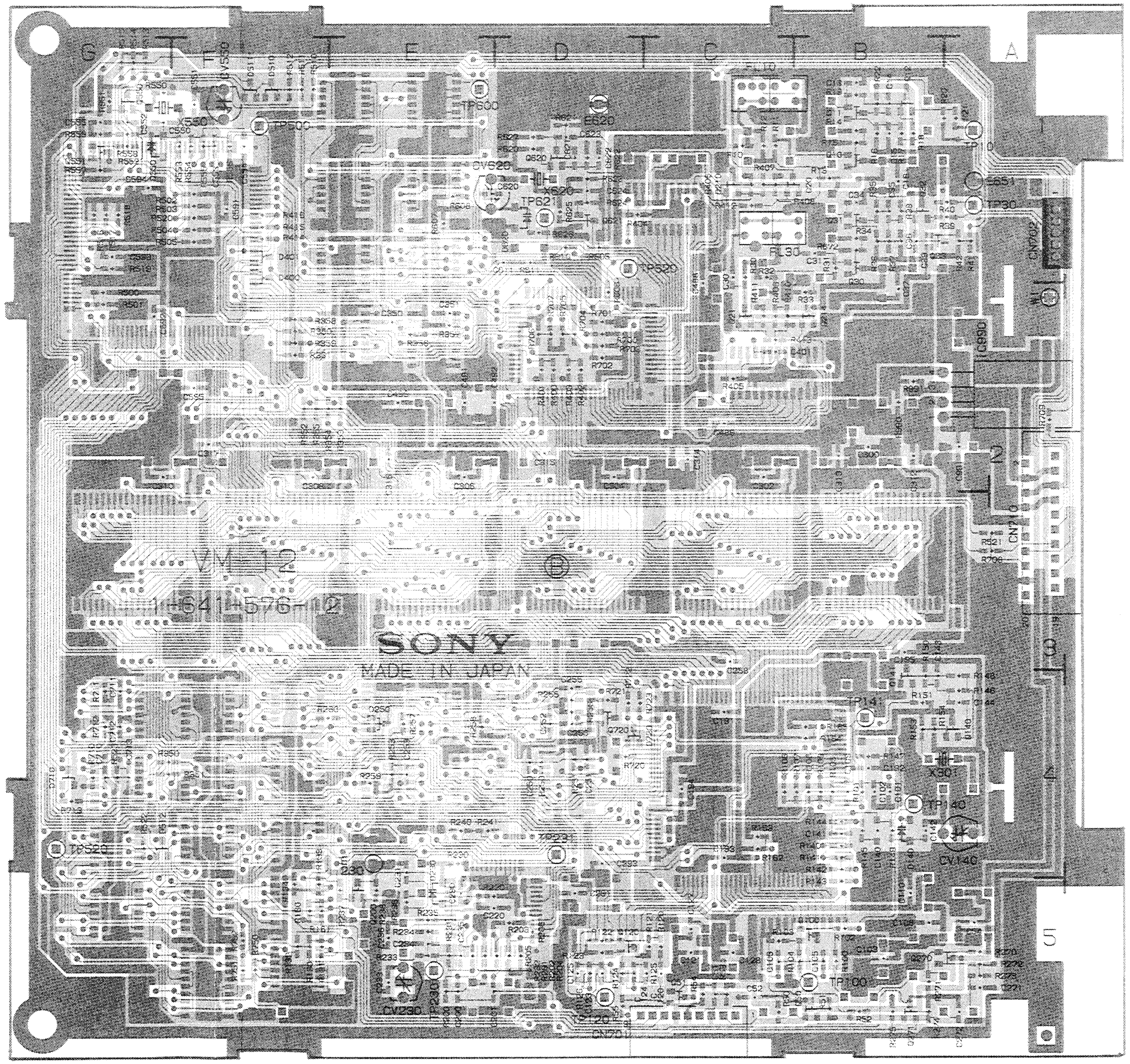


HIGHER (EK)



VM-12/P — A SIDE —

1-641-576-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

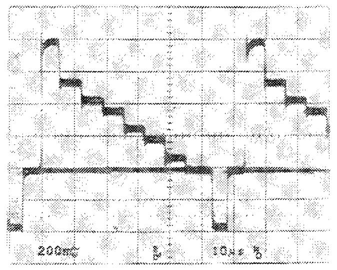


VM-12/P — B SIDE —

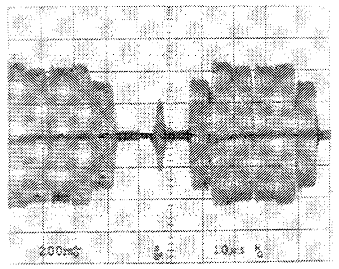
1-641-576-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

VM-12P (1/5); Y/C A-D CONVERTER & CHROMA NOISE REDUCER

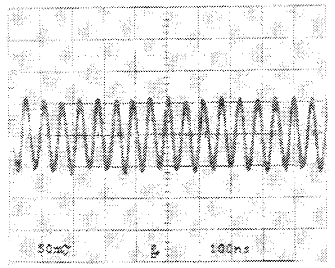
① TP100 (B-5) PB mode



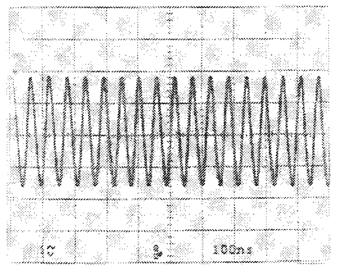
② TP120 (D-5) PB mode



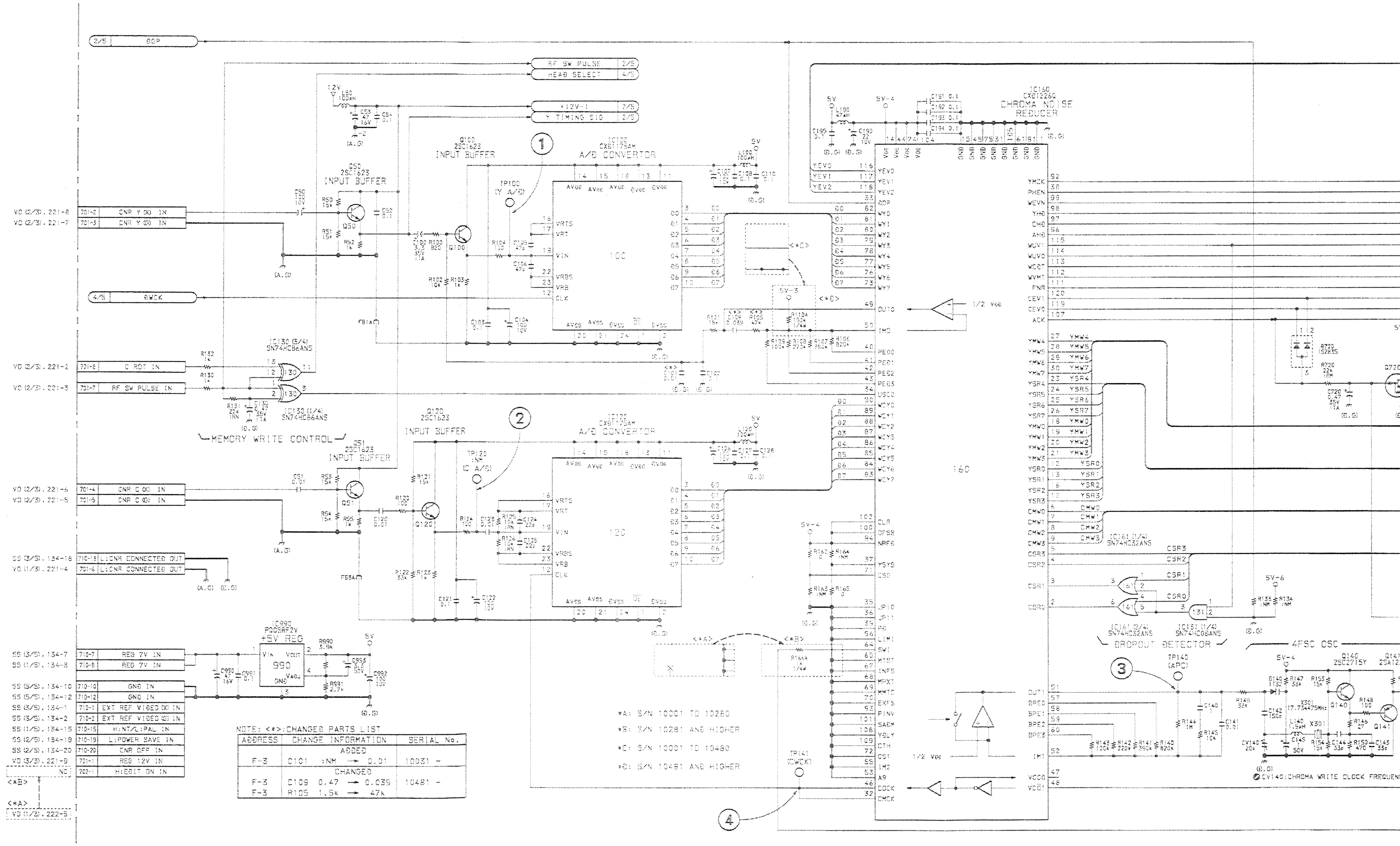
③ TP140 (B-4)



④ TP141 (B-4)



Measurement Condition
PB mode: KRV-45HPS

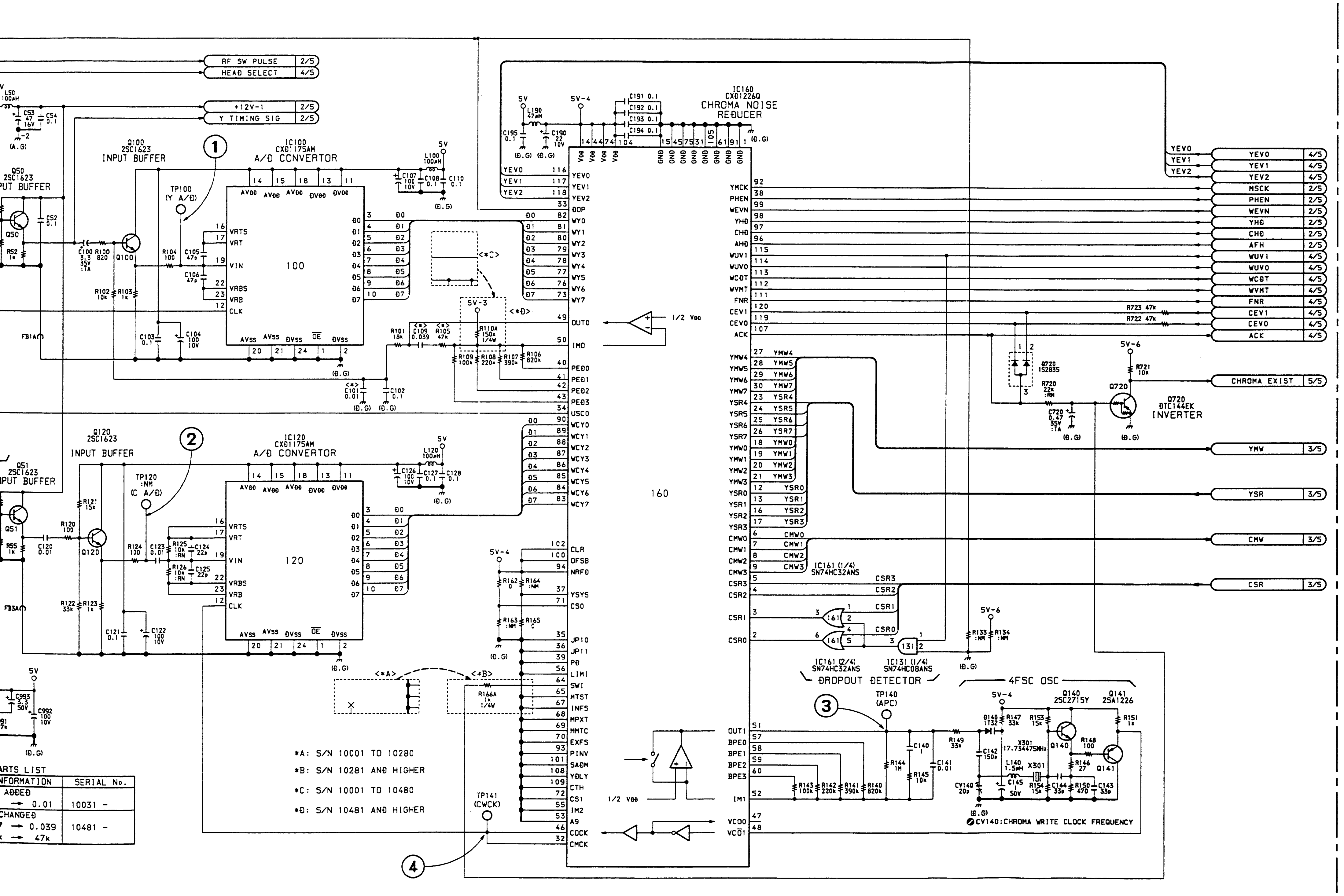

BOP
RF SW PULSE
HEAD SELECT
+12V-1
Y TIMING SIG
Q50 2SC1623 INPUT BUFFER
Q100 2SC1623 INPUT BUFFER
IC100 CXD1175AM A/D CONVERTOR
TP100 (Y A/D)
IC160 CXD1226Q CHROMA NOISE REDUCER
EWCK
IC130 (3/4) SN74HC86ANS
IC130 (1/4) SN74HC86ANS
MEMORY WRITE CONTROL
Q120 2SC1623 INPUT BUFFER
Q51 2SC1623 INPUT BUFFER
IC120 CXD1175AM A/D CONVERTOR
TP120 (C A/D)
CNR Y (X) IN
C ROT IN
RF SW PULSE IN
CNR C (X) IN
L:CNR CONNECTED OUT
IC990 PQ05RF2V +5V REG
REG 9V IN
REG 7V IN
GND IN
EXT REF VIDEO (X) IN
H:NTSC/L:PAL IN
L:POWER SAVE IN
CNR OFF IN
REG 12V IN
H:EDIT ON IN
IC161 (2/4) SN74HC32ANS
IC131 (1/4) SN74HC86ANS
DROPOUT DETECTOR
TP140 (APC)
TP141 (CWCK)
4FSC OSC
Q140 2SC2715Y
X301 17.734475MHz
CV140: CHROMA WRITE CLOCK FREQUENCY
1/2 Vcc
①
②
③
④

NOTE: <*>:CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION	SERIAL No.
	ADDED	
F-3	C101 :NM → 0.01	10031 ~
	CHANGED	
F-3	C109 0.47 → 0.039	10481 ~
F-3	R105 1.5k → 47k	

*A: S/N 10001 TO 10280
*B: S/N 10281 AND HIGHER
*C: S/N 10001 TO 10480
*D: S/N 10481 AND HIGHER

A | B | C | D | E | F | G | H


RF SW PULSE 2/5
HEAD SELECT 4/5
+12V-1 2/5
Y TIMING SIG 2/5
Q50 2SC1623 INPUT BUFFER
Q100 2SC1623 INPUT BUFFER
IC100 CXD1175AM A/D CONVERTOR
TP100 (Y A/D)
Q51 2SC1623 INPUT BUFFER
Q120 2SC1623 INPUT BUFFER
IC120 CXD1175AM A/D CONVERTOR
TP120 :NM (C A/D)
IC160 CXD1226Q CHROMA NOISE REDUCER
160
1/2 VDD
YEV0 4/5
YEV1 4/5
YEV2 4/5
MSCK 2/5
PHEN 2/5
WEVN 2/5
YHD 2/5
CHD 2/5
AFH 2/5
WUV1 4/5
WUV0 4/5
WCDT 4/5
WVMT 4/5
FNR 4/5
CEV1 4/5
CEV0 4/5
ACK 4/5
CHROMA EXIST 5/5
Q720 1S2835
Q720 DTC144EK INVERTER
YMW 3/5
YSR 3/5
CMW 3/5
CSR 3/5
IC161 (1/4) SN74HC32ANS
IC161 (2/4) SN74HC32ANS
IC131 (1/4) SN74HC08ANS
DROPOUT DETECTOR
TP140 (APC)
4FSC OSC
Q140 2SC2715Y
Q141 2SA1226
X301 17.734475MHz
CV140:CHROMA WRITE CLOCK FREQUENCY
TP141 (CWCK)
<*A>
<*B>
<*C>
<*D>
①
②
③
④

*A: S/N 10001 TO 10280

*B: S/N 10281 AND HIGHER

*C: S/N 10001 TO 10480

*D: S/N 10481 AND HIGHER

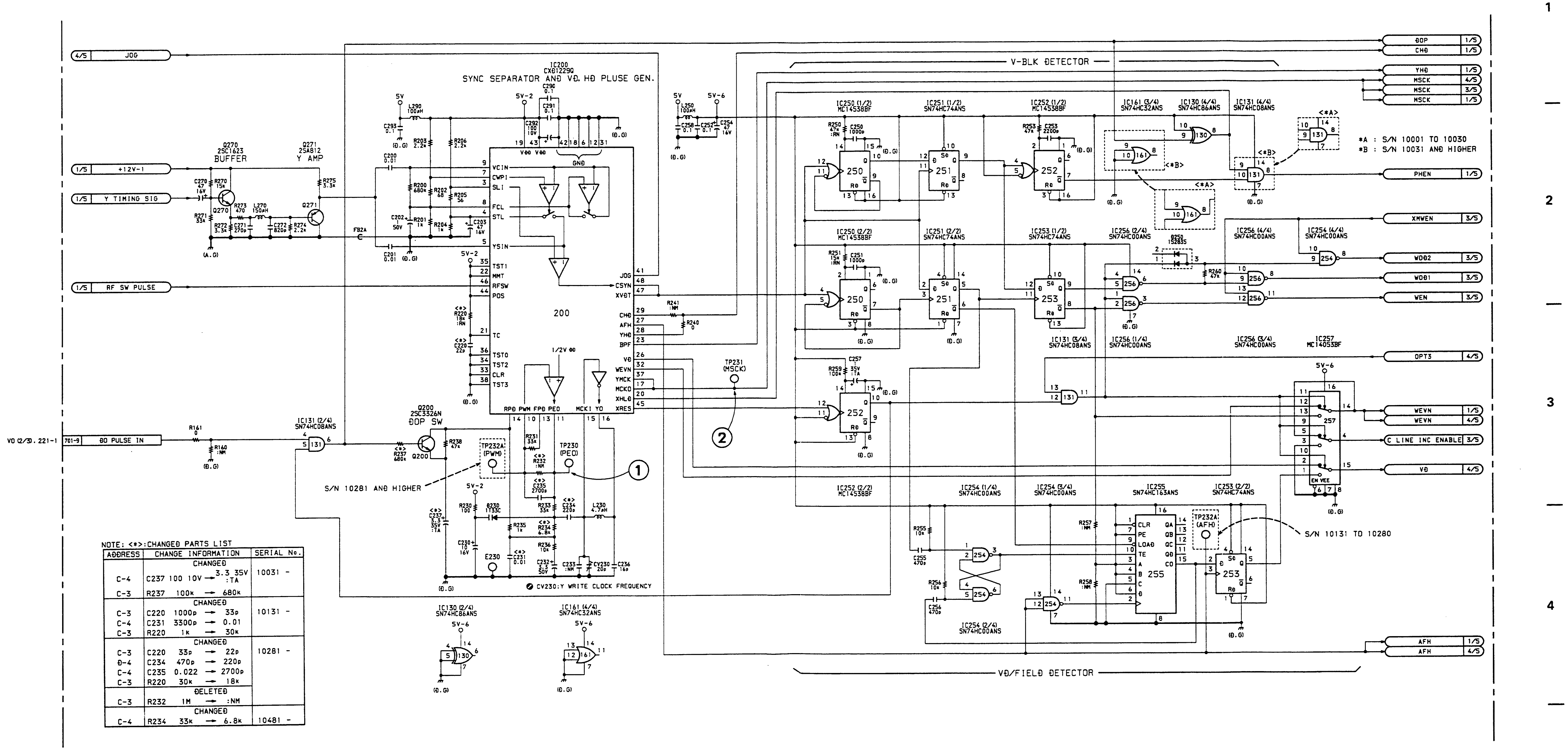
ARTS LIST

NFORMATION	SERIAL No.
ADDED → 0.01	10031 -
CHANGED 7 → 0.039 k → 47k	10481 -

VM-12P (1/5)

1-641-576-11, 12 (1)
SVO-9500MDP

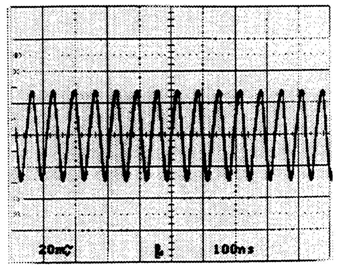
VM-12P (2/5) ; SYNC SEPARATOR & VD · HD PULSE GENERATOR


1
2
3
4
5
4/5 JOG
1/5 +12V-1
1/5 Y TIMING SIG
1/5 RF SW PULSE
VD (2/5). 221-1 701-9 DD PULSE IN
Q270 2SC1623 BUFFER
Q271 2SA812 Y AMP
IC200 CXD1229Q SYNC SEPARATOR AND VD, HD PLUSE GEN.
200
IC131 (2/4) SN74HC08ANS
Q200 2SC3326N DDP SW
TP232A (PWM)
TP230 (PEO)
TP231 (MSCK)
S/N 10281 AND HIGHER
CV230:Y WRITE CLOCK FREQUENCY
IC130 (2/4) SN74HC86ANS
IC161 (4/4) SN74HC32ANS
V-BLK DETECTOR
VD/FIELD DETECTOR
IC250 (1/2) MC14538BF
IC251 (1/2) SN74HC74ANS
IC252 (1/2) MC14538BF
IC161 (3/4) SN74HC32ANS
IC130 (4/4) SN74HC86ANS
IC131 (4/4) SN74HC08ANS
IC250 (2/2) MC14538BF
IC251 (2/2) SN74HC74ANS
IC253 (1/2) SN74HC74ANS
IC256 (2/4) SN74HC00ANS
IC256 (4/4) SN74HC00ANS
IC254 (4/4) SN74HC00ANS
IC131 (3/4) SN74HC08ANS
IC256 (1/4) SN74HC00ANS
IC256 (3/4) SN74HC00ANS
IC257 MC14053BF
IC252 (2/2) MC14538BF
IC254 (1/4) SN74HC00ANS
IC254 (3/4) SN74HC00ANS
IC255 SN74HC163ANS
IC253 (2/2) SN74HC74ANS
IC254 (2/4) SN74HC00ANS
TP232A (AFH)
S/N 10131 TO 10280
*A : S/N 10001 TO 10030
*B : S/N 10031 AND HIGHER
DDP 1/5
CHD 1/5
YHD 1/5
MSCK 1/5
MSCK 4/5
MSCK 3/5
MSCK 1/5
PHEN 1/5
XMWEN 3/5
WDD2 3/5
WDD1 3/5
WEN 3/5
OPT3 4/5
WEVN 1/5
WEVN 4/5
C LINE INC ENABLE 3/5
VD 4/5
AFH 1/5
AFH 4/5

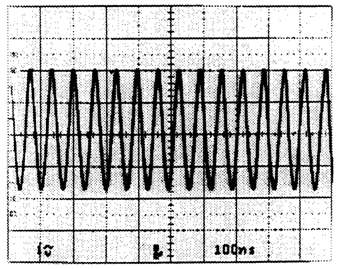
NOTE: <*>:CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
C-4	C237 100 10V → 3.3 35V :TA	10031 -
C-3	R237 100k → 680k	
	CHANGED	
C-3	C220 1000p → 33p	10131 -
C-4	C231 3300p → 0.01	
C-3	R220 1k → 30k	
	CHANGED	
C-3	C220 33p → 22p	10281 -
D-4	C234 470p → 220p	
C-4	C235 0.022 → 2700p	
C-3	R220 30k → 18k	
	DELETED	
C-3	R232 1M → :NM	
	CHANGED	
C-4	R234 33k → 6.8k	10481 -

① TP230 (E-5)



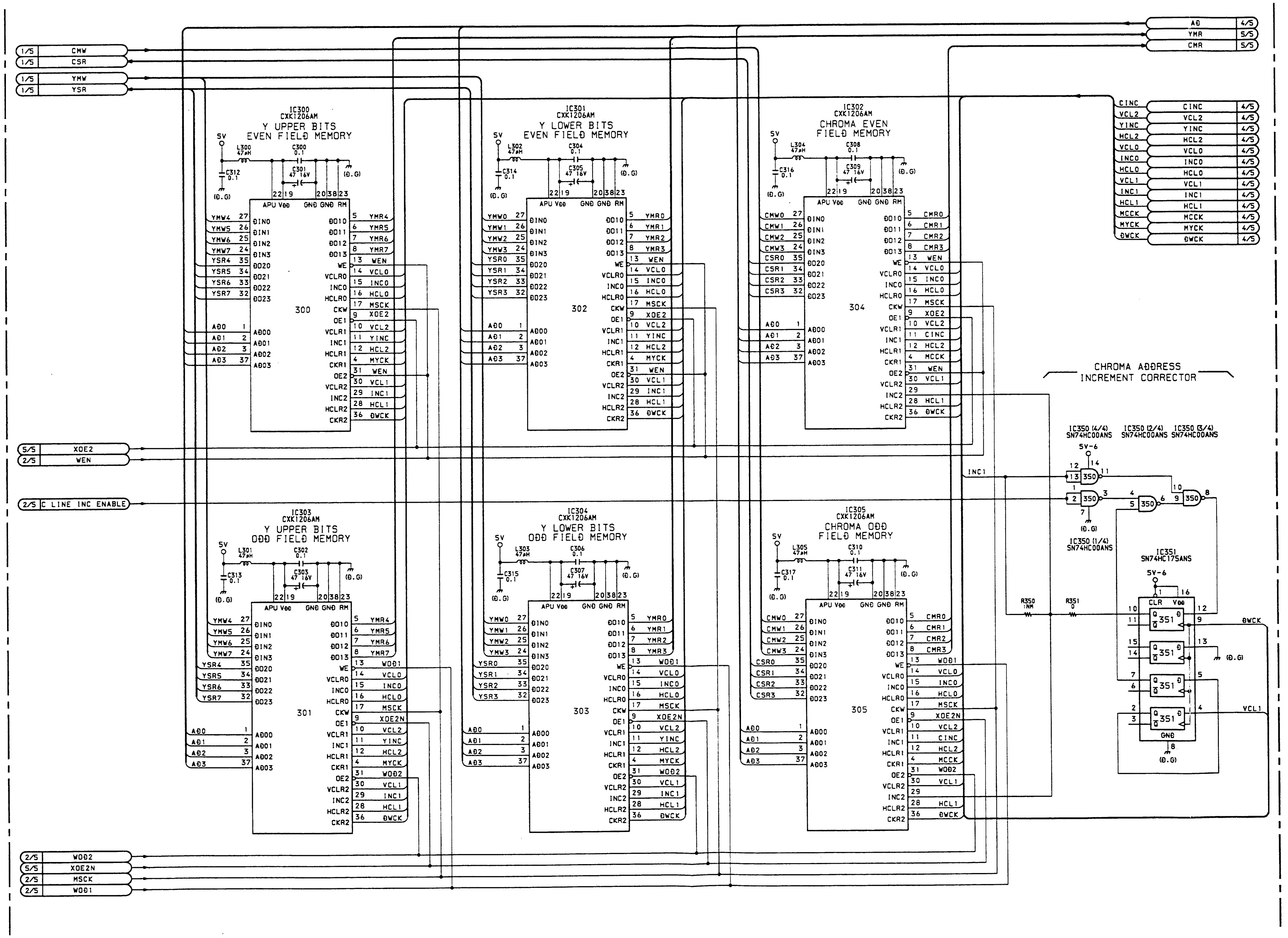
② TP231 (D-4)



VM-12P (2/5)

1-641-576-11, 12 (1)
SVO-9500MDP

VM-12P (3/5) ; Y/C FIELD MEMORY

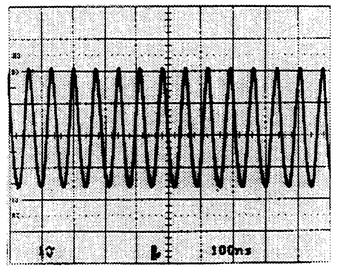

IC300
CXK1206AM
Y UPPER BITS
EVEN FIELD MEMORY
IC301
CXK1206AM
Y LOWER BITS
EVEN FIELD MEMORY
IC302
CXK1206AM
CHROMA EVEN
FIELD MEMORY
IC303
CXK1206AM
Y UPPER BITS
ODD FIELD MEMORY
IC304
CXK1206AM
Y LOWER BITS
ODD FIELD MEMORY
IC305
CXK1206AM
CHROMA ODD
FIELD MEMORY
CHROMA ADDRESS
INCREMENT CORRECTOR
IC350 (4/4) SN74HC00ANS
IC350 (2/4) SN74HC00ANS
IC350 (3/4) SN74HC00ANS
IC350 (1/4) SN74HC00ANS
IC351
SN74HC175ANS
5V-6
R350 :NM
R351 0
1/5 CMW
1/5 CSR
1/5 YMW
1/5 YSR
5/5 XOE2
2/5 WEN
2/5 C LINE INC ENABLE
2/5 WOD2
5/5 XOE2N
2/5 MSCK
2/5 WOD1
A0 4/5
YMR 5/5
CMR 5/5
CINC 4/5
VCL2 4/5
YINC 4/5
HCL2 4/5
VCL0 4/5
INC0 4/5
HCL0 4/5
VCL1 4/5
INC1 4/5
HCL1 4/5
MCCK 4/5
MYCK 4/5
OWCK 4/5
INC1
OWCK
VCL1
5V
L300 47µH
C300 0.1
C301 47 16V
C312 0.1
(D.G)
APU Vdd GND GND RM
300
301
302
303
304
305
1
2
3
4
5
A
B
C
D
E
F
G
H

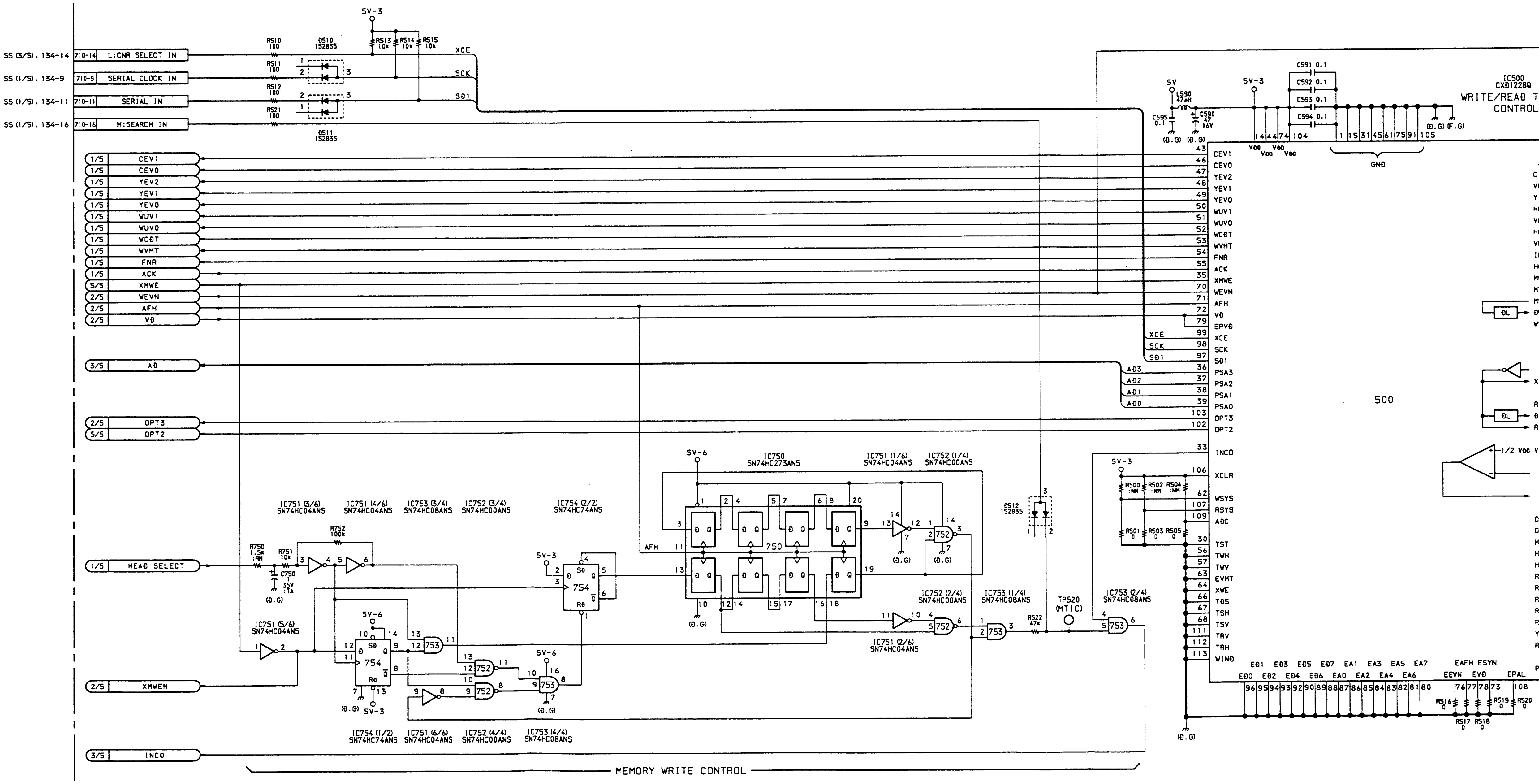
VM-12P (3/5)

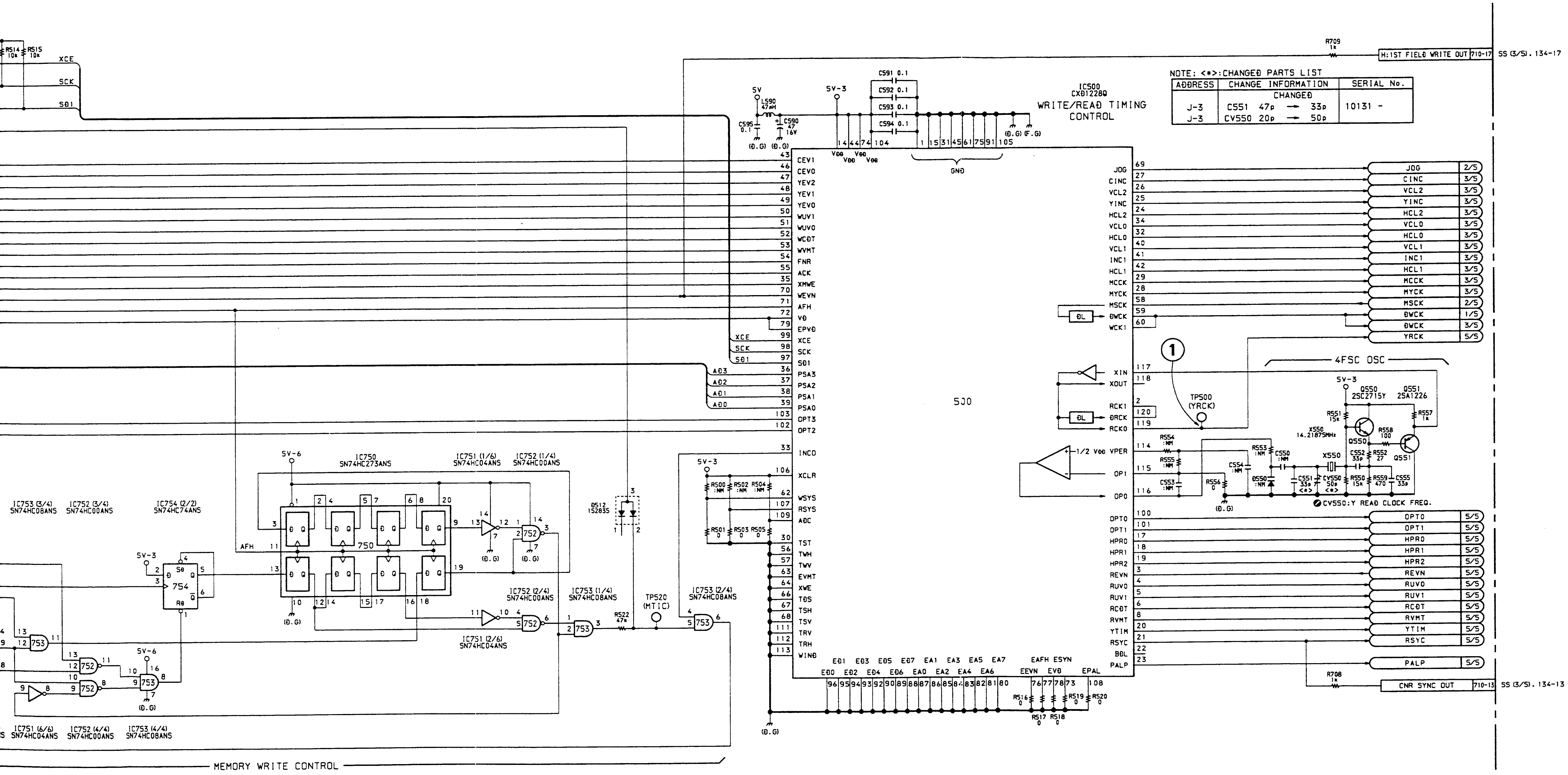
1-641-576-11, 12 (1)
SVO-9500MDP

VM-12P (4/5); WRITE/READ TIMING CONTROL

① TP500 (F-1)




SS (3/5). 134-14
710-14
L:CNR SELECT IN
SS (1/5). 134-9
710-9
SERIAL CLOCK IN
SS (1/5). 134-11
710-11
SERIAL IN
SS (1/5). 134-16
710-16
H:SEARCH IN
R510 100
R511 100
R512 100
R521 100
D510 1S2835
D511 1S2835
5V-3
R513 10k
R514 10k
R515 10k
XCE
SCK
SD1
1/5 CEV1
1/5 CEV0
1/5 YEV2
1/5 YEV1
1/5 YEV0
1/5 WUV1
1/5 WUV0
1/5 WCDT
1/5 WVMT
1/5 FNR
1/5 ACK
5/5 XMWE
2/5 WEVN
2/5 AFH
2/5 VD
3/5 AD
2/5 OPT3
5/5 OPT2
1/5 HEAD SELECT
2/5 XMWEN
3/5 INCO
R750 1.5k :RN
R751 10k
R752 100k
C750 1 35V :TA
(D.G)
IC751 (3/6) SN74HC04ANS
IC751 (4/6) SN74HC04ANS
IC753 (3/4) SN74HC08ANS
IC752 (3/4) SN74HC00ANS
IC754 (2/2) SN74HC74ANS
IC751 (5/6) SN74HC04ANS
5V-6
754
753
752
IC754 (1/2) SN74HC74ANS
IC751 (6/6) SN74HC04ANS
IC752 (4/4) SN74HC00ANS
IC753 (4/4) SN74HC08ANS
IC750 SN74HC273ANS
750
AFH
IC751 (1/6) SN74HC04ANS
IC752 (1/4) SN74HC00ANS
IC752 (2/4) SN74HC00ANS
IC753 (1/4) SN74HC08ANS
IC751 (2/6) SN74HC04ANS
D512 1S2835
R522 47k
TP520 (MTIC)
IC753 (2/4) SN74HC08ANS
MEMORY WRITE CONTROL
5V
L590 47µH
C595 0.1
C590 47 16V
C591 0.1
C592 0.1
C593 0.1
C594 0.1
(D.G) (F.G)
IC500 CXD1228Q
WRITE/READ T
CONTROL
VDD
GND
43 CEV1
46 CEV0
47 YEV2
48 YEV1
49 YEV0
50 WUV1
51 WUV0
52 WCDT
53 WVMT
54 FNR
55 ACK
35 XMWE
70 WEVN
71 AFH
72 VD
79 EPVD
99 XCE
98 SCK
97 SD1
36 PSA3
37 PSA2
38 PSA1
39 PSA0
103 OPT3
102 OPT2
33 INCO
106 XCLR
62 WSYS
107 RSYS
109 ADC
30 TST
56 TWH
57 TWV
63 EVMT
64 XWE
66 TDS
67 TSH
68 TSV
111 TRV
112 TRH
113 WIND
AD3
AD2
AD1
AD0
R500 :NM
R502 :NM
R504 :NM
R501 0
R503 0
R505 0
500
DL
1/2 VDD
ED0 ED1 ED2 ED3 ED4 ED5 ED6 ED7
EA0 EA1 EA2 EA3 EA4 EA5 EA6 EA7
EEVN EVD EAFH ESYN EPAL
R516 0
R517 0
R518 0
R519 0
R520 0


IC500
CXD1228Q
WRITE/READ TIMING CONTROL
IC750 SN74HC273ANS
IC751 (1/6) SN74HC04ANS
IC752 (1/4) SN74HC00ANS
IC753 (3/4) SN74HC08ANS
IC752 (3/4) SN74HC00ANS
IC754 (2/2) SN74HC74ANS
IC752 (2/4) SN74HC00ANS
IC753 (1/4) SN74HC08ANS
IC753 (2/4) SN74HC08ANS
IC751 (2/6) SN74HC04ANS
IC751 (6/6) SN74HC04ANS
IC752 (4/4) SN74HC00ANS
IC753 (4/4) SN74HC08ANS
D512 1SS235
TP520 (MTIC)
TP500 (YRCK)
4FSC OSC
Q550 2SC2715Y
Q551 2SA1226
X550 14.31818MHz
CV550:Y READ CLOCK FREQ.
H:1ST FIELD WRITE OUT 710-17 SS (3/5). 134-17
CNR SYNC OUT 710-13 SS (3/5). 134-13
MEMORY WRITE CONTROL
JOG
CINC
VCL2
YINC
HCL2
VCLO
HCLO
VCL1
INC1
HCL1
MCCK
MYCK
MSCK
BWCK
YRCK
OPTO
OPT1
HPRO
HPR1
HPR2
REVN
RUVO
RUV1
RCDT
RVMT
YTIM
RSYC
PALP
XCE
SCK
SO1
AFH
5V-3
5V-6
5V
(D.G)
(F.G)
GND

NOTE: <*>:CHANGED PARTS LIST

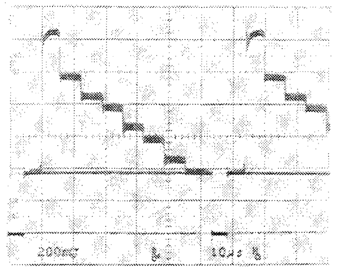
ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
J-3	C551 47p → 33p	10131 -
J-3	CV550 20p → 50p	

VM-12P (4/5)

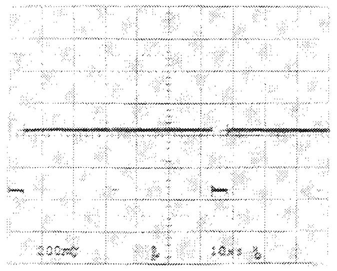
1-641-576-11, 12 (1)
SVO-9500MDP

VM-12P (5/5) ; CHROMA ENCODER & Y/C D-A CONVERTER

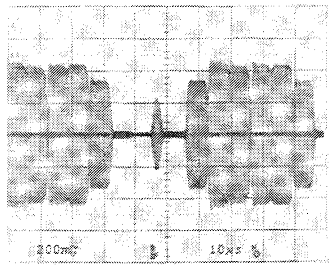
① TP10 (A-1) PB mode



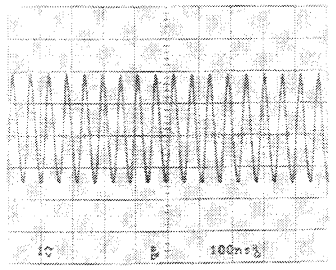
TP10 (A-1) STOP (E-E) mode



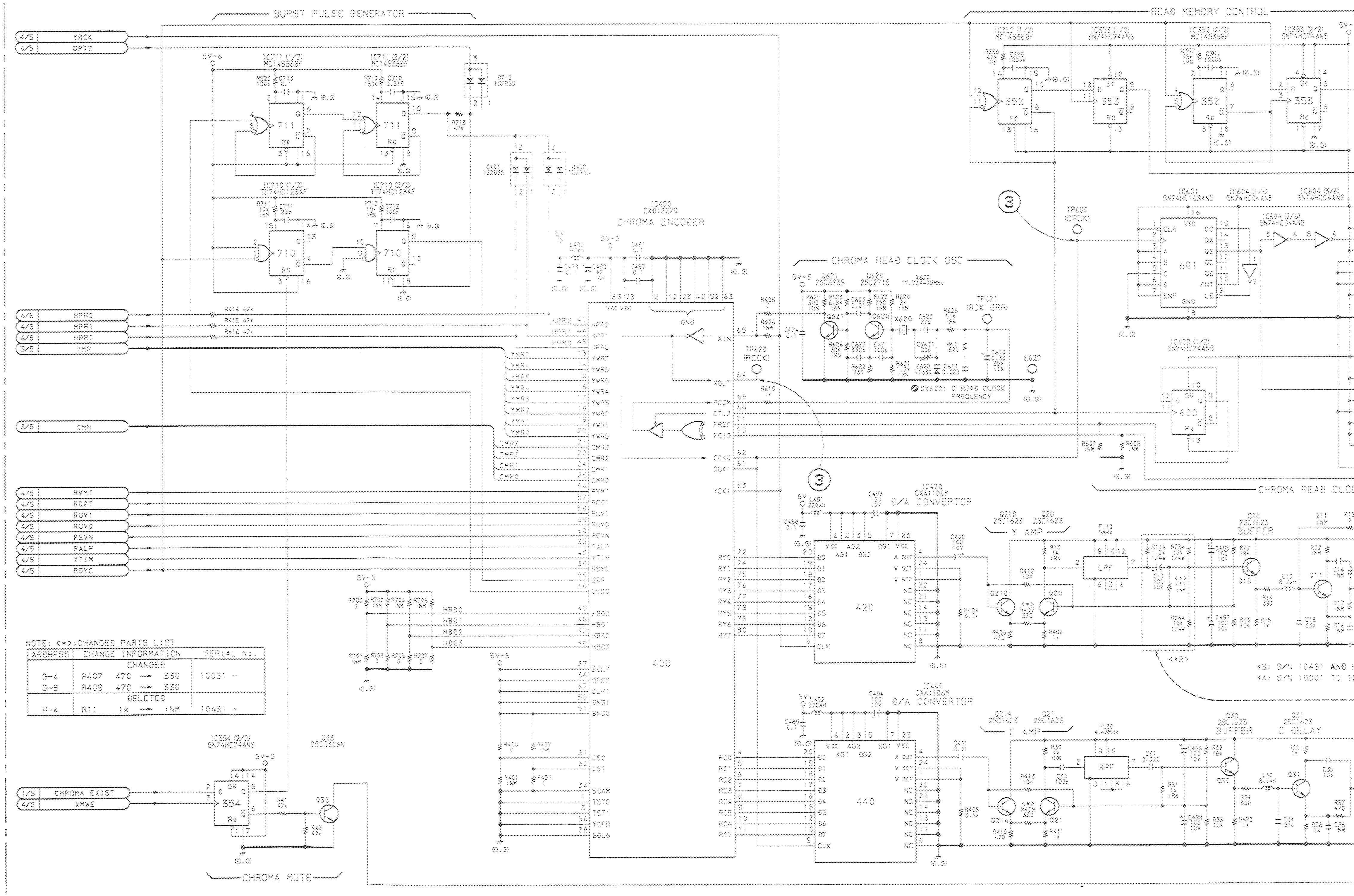
② TP30 (A-1) PB mode



③ TP600 (D-1)
TP620 (C-1)



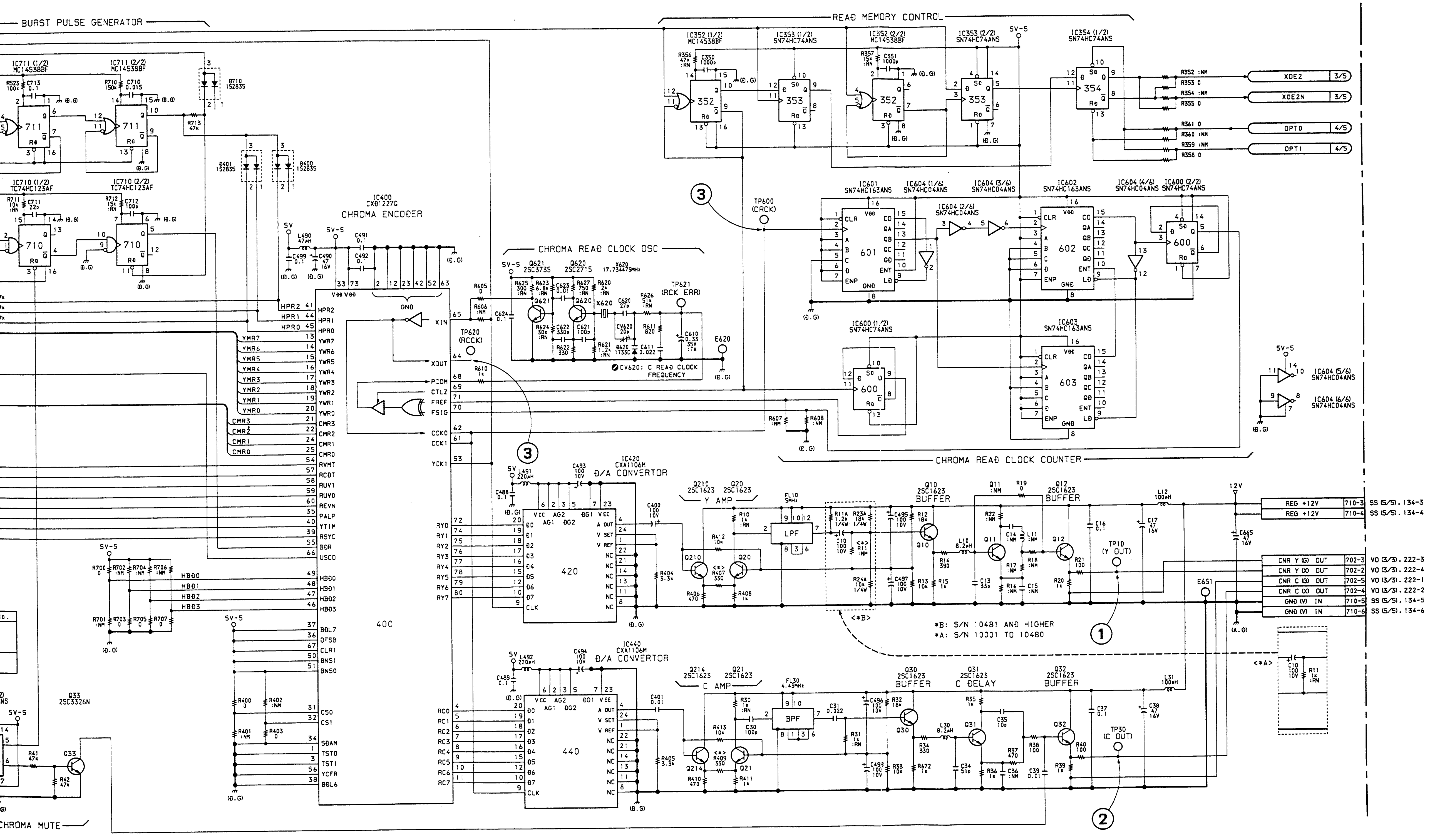
Measurement Condition
PB mode: KRV-45HPS
STOP (E-E) mode: S-VHS


BURST PULSE GENERATOR
READ MEMORY CONTROL
IC400 CXD2070 CHROMA ENCODER
CHROMA READ CLOCK OSC
IC420 CXA1106M D/A CONVERTOR
IC440 CXA1106M D/A CONVERTOR
Y AMP
C AMP
BUFFER
C DELAY
LPF
BPF
CHROMA MUTE
CHROMA READ CLOCK
TP600 (RCK)
TP620 (RCCK)
TP621 (RCK ORR)
YRCK
OPT2
HPR2
HPR1
HPR0
YMR
CMR
RVMT
RCDT
RUV1
RUV2
REVN
PALP
YTIM
RSYC
CHROMA EXIST
XMWE
③

NOTE: <*>:CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
G-4	R407 470 → 330	10031 ~
G-5	R409 470 → 330	
	DELETED	
H-4	R11 1k → :NM	10481 ~

*B: S/N 10481 AND
*A: S/N 10001 TO 1


BURST PULSE GENERATOR
IC711 (1/2) MC14538BF
IC711 (2/2) MC14538BF
IC710 (1/2) TC74HC123AF
IC710 (2/2) TC74HC123AF
D710 1SS355
D401 1SS355
D400 1SS355
READ MEMORY CONTROL
IC352 (1/2) MC14538BF
IC353 (1/2) SN74HC74ANS
IC352 (2/2) MC14538BF
IC353 (2/2) SN74HC74ANS
IC354 (1/2) SN74HC74ANS
XOE2 3/5
XOE2N 3/5
OPT0 4/5
OPT1 4/5
IC400 CXD1227Q CHROMA ENCODER
CHROMA READ CLOCK OSC
Q621 2SC3735
Q620 2SC2715
X620 17.734475MHz
TP620 (RCCK)
TP621 (RCK ERR)
CV620: C READ CLOCK FREQUENCY
TP600 (CRCK)
IC601 SN74HC163ANS
IC604 (1/6) SN74HC04ANS
IC604 (2/6) SN74HC04ANS
IC604 (3/6) SN74HC04ANS
IC602 SN74HC163ANS
IC604 (4/6) SN74HC04ANS
IC600 (2/2) SN74HC74ANS
IC600 (1/2) SN74HC74ANS
IC603 SN74HC163ANS
IC604 (5/6) SN74HC04ANS
IC604 (6/6) SN74HC04ANS
CHROMA READ CLOCK COUNTER
IC420 CXA1106M D/A CONVERTOR
Q210 2SC1623
Q20 2SC1623
Y AMP
LPF
Q10 2SC1623 BUFFER
Q11 :NM
Q12 2SC1623 BUFFER
TP10 (Y OUT)
REG +12V 710-3 SS (5/5). 134-3
REG +12V 710-4 SS (5/5). 134-4
CNR Y (G) OUT 702-3 VO (3/3). 222-3
CNR Y (X) OUT 702-2 VO (3/3). 222-4
CNR C (G) OUT 702-5 VO (3/3). 222-1
CNR C (X) OUT 702-4 VO (3/3). 222-2
GND (V) IN 710-5 SS (5/5). 134-5
GND (V) IN 710-6 SS (5/5). 134-6
E651
*B: S/N 10481 AND HIGHER
*A: S/N 10001 TO 10480
IC440 CXA1106M D/A CONVERTOR
Q214 2SC1623
Q21 2SC1623
C AMP
BPF
Q30 2SC1623 BUFFER
Q31 2SC1623 C DELAY
Q32 2SC1623 BUFFER
TP30 (C OUT)
Q33 2SC3326N
CHROMA MUTE
400
420
440
①
②
③

VM-12P (5/5)

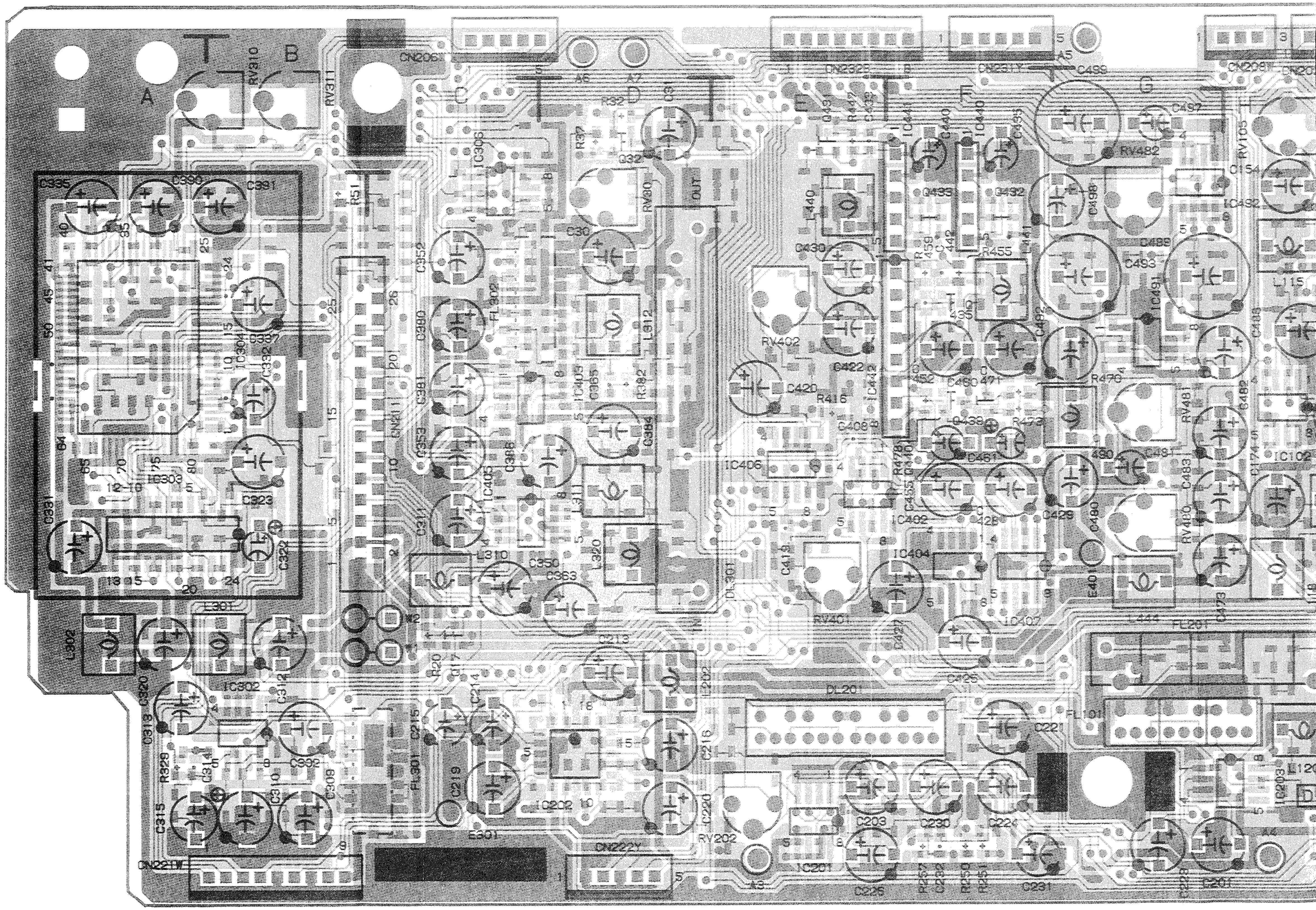
1-641-576-11, 12 (1)
SVO-9500MDP

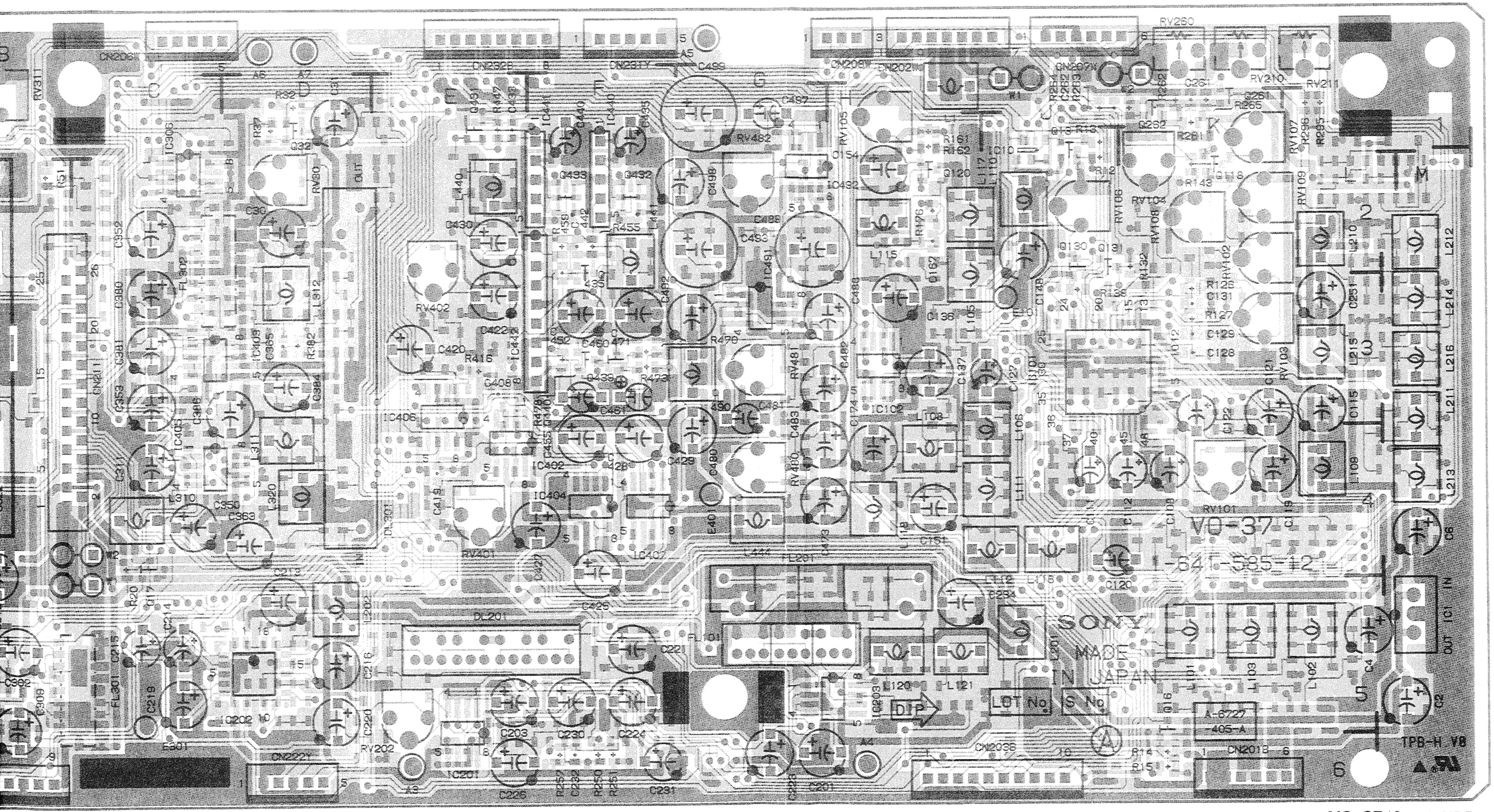
VO-37A ; Y/C VIDEO PROCESS

VO-37A (1-641-585-12)

CN201	K-6
CN202	H-1
CN203	J-6
CN206	C-1
CN207	J-1
CN208	H-1
CN211	C-3
CN221	A-6
CN222	D-6
CN231	F-1
CN232	E-1
DL201	E-5
DL301	E-4
D10	B-3 *
D101	K-4 *
D103	J-3 *
D201	C-5 *
D202	F-5 *
D301	A-3 *
E101	J-3
E301	C-6
E401	G-4
FL101	G-5
FL201	G-4
FL301	C-5
FL302	C-2
IC1	M-5
IC10	J-1
IC101	J-3
IC102	H-3
IC201	E-6
IC202	D-5
IC203	H-5
IC302	B-5
IC303	A-4
IC304	B-3
IC306	C-1
IC402	F-4
IC403	D-3
IC404	F-4
IC405	C-4
IC406	E-3
IC407	F-4
IC440	F-1
IC441	F-1
IC442	E-3
IC491	G-2
IC492	H-2
Q10	J-6 *
Q11	J-1 *
Q12	J-1 *
Q13	J-1
Q14	K-6 *
Q15	K-6 *
Q16	K-5
Q17	C-5
Q19	E-3 *
Q20	A-3 *
Q21	A-3 *
Q22	A-3 *
Q30	D-1 *
Q31	D-1 *
Q32	D-1
Q40	D-1 *
Q41	D-1 *
Q101	L-4 *
Q102	K-4 *
Q103	K-5 *
Q104	K-5 *
Q105	L-5 *
Q106	L-5 *
Q107	K-4 *
Q108	K-5 *
Q109	L-5 *
Q110	L-5 *
Q111	K-3 *
Q112	K-2 *
Q113	K-3 *
Q114	K-2 *
Q116	K-2 *
Q118	K-2
Q119	K-1 *
Q120	H-2
Q121	H-4 *
Q122	H-3 *
Q123	K-5 *
Q124	H-1 *
Q125	H-2 *
Q126	H-2 *
Q128	H-4 *
Q130	J-2
Q131	J-2
Q140	H-5 *
Q141	H-5 *
Q201	C-5 *
Q203	D-5 *
Q204	F-5 *
Q205	F-5 *
Q206	F-6 *
Q207	E-6 *
Q208	G-4 *
Q209	J-5 *
Q210	L-3 *
Q211	L-2 *
Q212	L-1 *
Q213	L-1 *
Q214	M-2 *
Q215	M-2 *
Q216	M-1 *
Q261	K-1
Q262	K-1
Q304	B-5 *
Q305	B-5 *
Q306	A-5 *
Q310	B-4 *
Q311	B-4 *
Q312	A-4 *
Q313	A-3 *
Q314	B-2 *
Q320	D-2 *
Q323	D-3 *
Q324	D-4 *
Q326	D-3 *
Q327	D-2 *
Q328	D-3 *
Q329	D-2 *
Q333	C-2 *
Q334	B-2 *
Q335	C-3 *
Q336	C-3 *
Q337	C-3 *
Q339	B-2 *
Q402	E-4 *
Q420	E-3 *
Q421	E-3 *
Q430	E-2 *
Q431	E-1
Q432	F-2
Q433	F-2
Q434	F-2 *
Q435	F-3
Q438	F-3 *
Q439	F-3
Q440	F-3
Q480	G-3 *
Q481	G-4 *
Q482	G-3 *
Q483	G-3 *
RV30	D-2
RV101	K-4
RV102	K-2
RV103	K-3
RV104	K-2
RV105	H-1
RV106	J-2
RV107	L-1
RV108	K-2
RV109	L-2
RV202	E-5
RV210	K-1
RV211	L-1
RV260	K-1
RV310	B-1
RV311	B-1
RV401	E-4
RV402	E-3
RV480	G-4
RV481	G-3
RV482	G-1
TP101	K-3 *
TP201	E-5 *
TP202	L-1 *
TP203	G-5 *
TP210	J-1 *
TP301	C-5 *
TP302	A-5 *
TP303	D-4 *
TP304	D-2 *
TP491	H-1 *
TP492	G-1 *

* mark ; B SIDE mount


A
B
C
D
E
F
G
T
RV310
RV311
CN206
CN232S
CN231Y
C499
A5
A6
A7
R32
C31
Q32
R37
IC306
RV30
C30
OUT
C335
C390
C391
IC304
C332
C397
IC303
C323
C331
C322
L302
L301
IC302
C320
C318
C312
R329
C314
C310
C309
C315
C392
CN221W
E301
FL301
C219
C215
C214
IC202
CN222Y
C352
C390
C381
C353
C311
FL302
IC405
C365
C386
L312
L311
L310
C350
C363
L320
C384
R382
C213
IE202
C216
C220
RV202
DL301
DL201
C420
R416
C408
RV402
RV401
C415
IC406
IC404
IC402
IC407
C430
C422
L440
IC441
C440
IC440
Q433
Q432
R455
C441
C442
C450
C452
C455
R478
C461
R473
C429
C428
C425
FL101
FL201
L444
C221
C203
C230
C224
C225
C231
C228
C201
IC201
R252
C252
R250
R251
RV482
C497
C498
C493
C489
C491
RV105
C154
IC492
L115
C488
C482
R470
RV481
C481
C480
C483
RV480
C473
E401
IC102
C174
L120
IC203
CN209T
A3
A4


VO-37
1-641-585-12
SONY
MADE IN JAPAN
LOT No.
S No.
DIP
A-6727
-405-A
TPB-H V8
CN2061
CN232B
CN231Y
CN208W
CN202I
CN207W
CN222Y
CN203B
CN201B
DL201
FL201
FL101
RV101
RV401
RV402
RV202

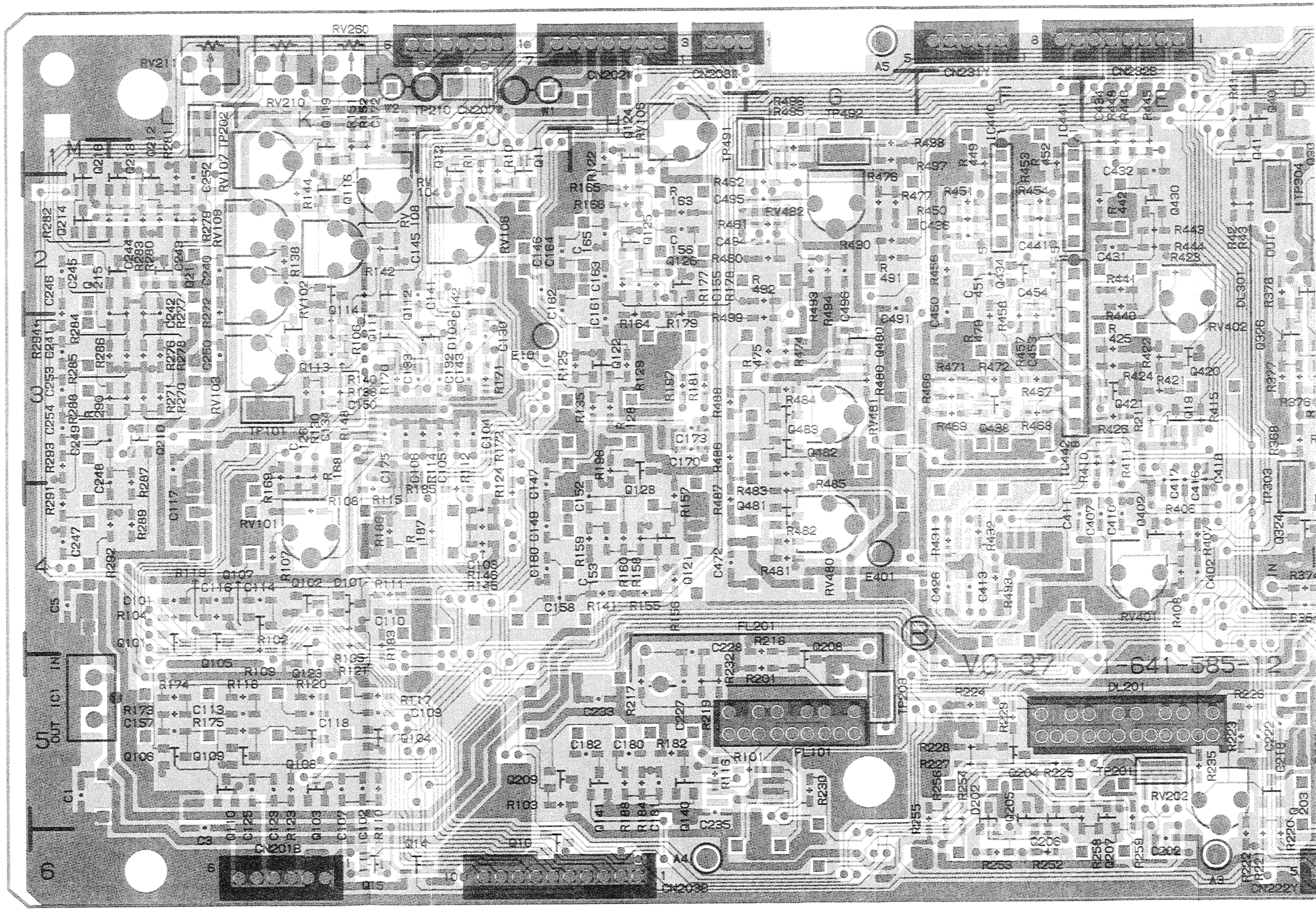
VO-37/A — A SIDE —
1-641-585-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

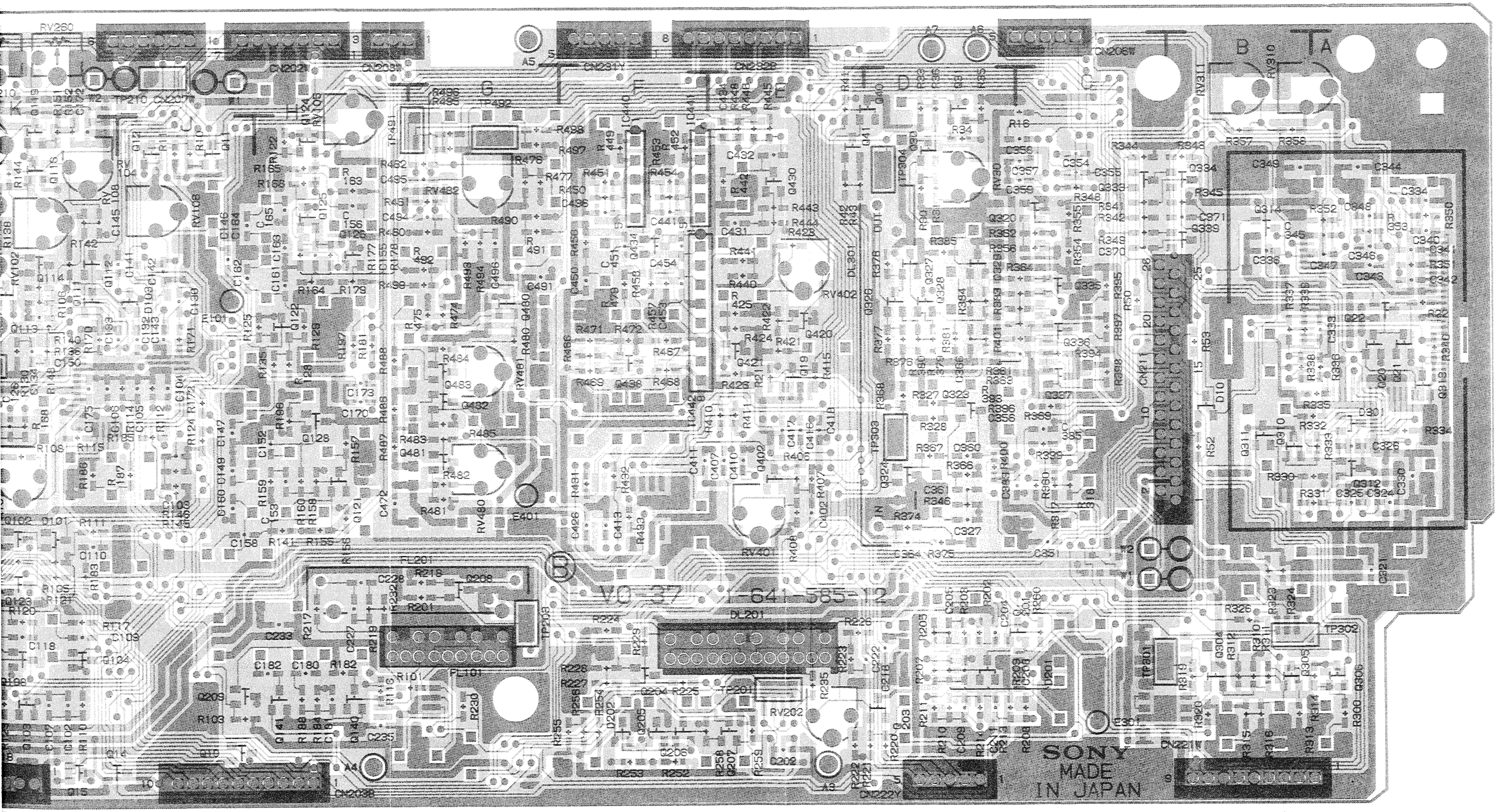
VO-37A; Y/C VIDEO PROCESS

VO-37A (1-641-585-12)

CN201	K-6
CN202	H-1
CN203	J-6
CN206	C-1
CN207	J-1
CN208	H-1
CN211	C-3
CN221	A-6
CN222	D-6
CN231	F-1
CN232	E-1
DL201	E-5
DL301	E-4
D10	B-3 *
D101	K-4 *
D103	J-3 *
D201	C-5 *
D202	F-5 *
D301	A-3 *
E101	J-3
E301	C-6
E401	G-4
FL101	G-5
FL201	G-4
FL301	C-5
FL302	C-2
IC1	M-5
IC10	J-1
IC101	J-3
IC102	H-3
IC201	E-6
IC202	D-5
IC203	H-5
IC302	B-5
IC303	A-4
IC304	B-3
IC306	C-1
IC402	F-4
IC403	D-3
IC404	F-4
IC405	C-4
IC406	E-3
IC407	F-4
IC440	F-1
IC441	F-1
IC442	E-3
IC491	G-2
IC492	H-2
Q10	J-6 *
Q11	J-1 *
Q12	J-1 *
Q13	J-1
Q14	K-6 *
Q15	K-6 *
Q16	K-5
Q17	C-5
Q19	E-3 *
Q20	A-3 *
Q21	A-3 *
Q22	A-3 *
Q30	D-1 *
Q31	D-1 *
Q32	D-1
Q40	D-1 *
Q41	D-1 *
Q101	L-4 *
Q102	K-4 *
Q103	K-5 *
Q104	K-5 *
Q105	L-5 *
Q106	L-5 *
Q107	K-4 *
Q108	K-5 *
Q109	L-5 *
Q110	L-5 *
Q111	K-3 *
Q112	K-2 *
Q113	K-3 *
Q114	K-2 *
Q116	K-2 *
Q118	K-2
Q119	K-1 *
Q120	H-2
Q121	H-4 *
Q122	H-3 *
Q123	K-5 *
Q124	H-1 *
Q125	H-2 *
Q126	H-2 *
Q128	H-4 *
Q130	J-2
Q131	J-2
Q140	H-5 *
Q141	H-5 *
Q201	C-5 *
Q203	D-5 *
Q204	F-5 *
Q205	F-5 *
Q206	F-6 *
Q207	E-6 *
Q208	G-4 *
Q209	J-5 *
Q210	L-3 *
Q211	L-2 *
Q212	L-1 *
Q213	L-1 *
Q214	M-2 *
Q215	M-2 *
Q216	M-1 *
Q261	K-1
Q262	K-1
Q304	B-5 *
Q305	B-5 *
Q306	A-5 *
Q310	B-4 *
Q311	B-4 *
Q312	A-4 *
Q313	A-3 *
Q314	B-2 *
Q320	D-2 *
Q323	D-3 *
Q324	D-4 *
Q326	D-3 *
Q327	D-2 *
Q328	D-3 *
Q329	D-2 *
Q333	C-2 *
Q334	B-2 *
Q335	C-3 *
Q336	C-3 *
Q337	C-3 *
Q339	B-2 *
Q402	E-4 *
Q420	E-3 *
Q421	E-3 *
Q430	E-2 *
Q431	E-1
Q432	F-2
Q433	F-2
Q434	F-2 *
Q435	F-3
Q438	F-3 *
Q439	F-3
Q440	F-3
Q480	G-3 *
Q481	G-4 *
Q482	G-3 *
Q483	G-3 *
RV30	D-2
RV101	K-4
RV102	K-2
RV103	K-3
RV104	K-2
RV105	H-1
RV106	J-2
RV107	L-1
RV108	K-2
RV109	L-2
RV202	E-5
RV210	K-1
RV211	L-1
RV260	K-1
RV310	B-1
RV311	B-1
RV401	E-4
RV402	E-3
RV480	G-4
RV481	G-3
RV482	G-1
TP101	K-3 *
TP201	E-5 *
TP202	L-1 *
TP203	G-5 *
TP210	J-1 *
TP301	C-5 *
TP302	A-5 *
TP303	D-4 *
TP304	D-2 *
TP491	H-1 *
TP492	G-1 *

* mark; B SIDE mount


VO-37 1-641-585-12
CN201B
CN202W
CN203B
CN207
CN231Y
CN232B
CN222Y
IC1
IN
OUT
RV211
RV210
RV260
RV101
RV102
RV103
RV104
RV105
RV106
RV107
RV108
RV109
RV202
RV401
RV402
RV480
RV481
RV482
TP101
TP201
TP202
TP203
TP210
TP303
TP304
TP491
TP492
DL201
DL301
FL101
FL201
E101
E401
A3
A4
A5
B
M
L
K
J
1
2
3
4
5
6


VO-37 1-641-585-12
SONY
MADE
IN JAPAN
CN202W
CN203Y
CN231Y
CN232B
CN206W
CN211
CN208B
CN222Y
CN221W
DL201
DL301
FL201
PL101
RV401
RV402
RV202
RV480
RV482
TP201
TP208
TP301
TP302
TP303
TP304
TP491
TP492
A3
A4
A5
A6
A7
E301
E401

VO-37/A — B SIDE —

1-641-585-12 (1)

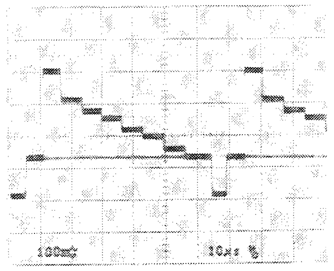
SVO-9500MD

SVO-9500MD4

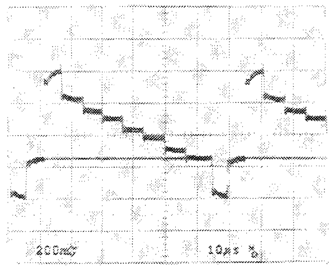
SVO-9500MDP

VO-37A (1/3) ; Y PROCESS

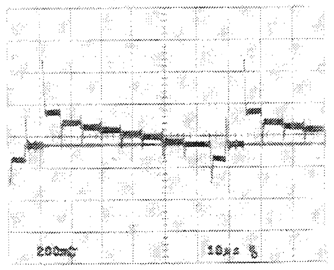
① TP203 (G-5*) STOP (E-E) mode



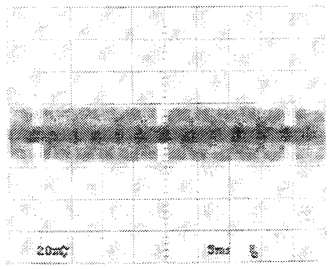
② TP201 (E-5*) STOP (E-E) mode



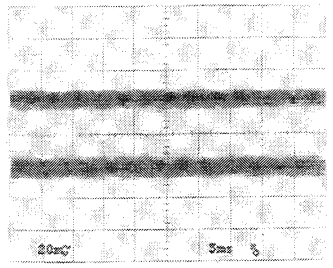
③ TP101 (K-3*) STOP (E-E) mode



④ TP210 (J-1*) STOP (E-E) mode

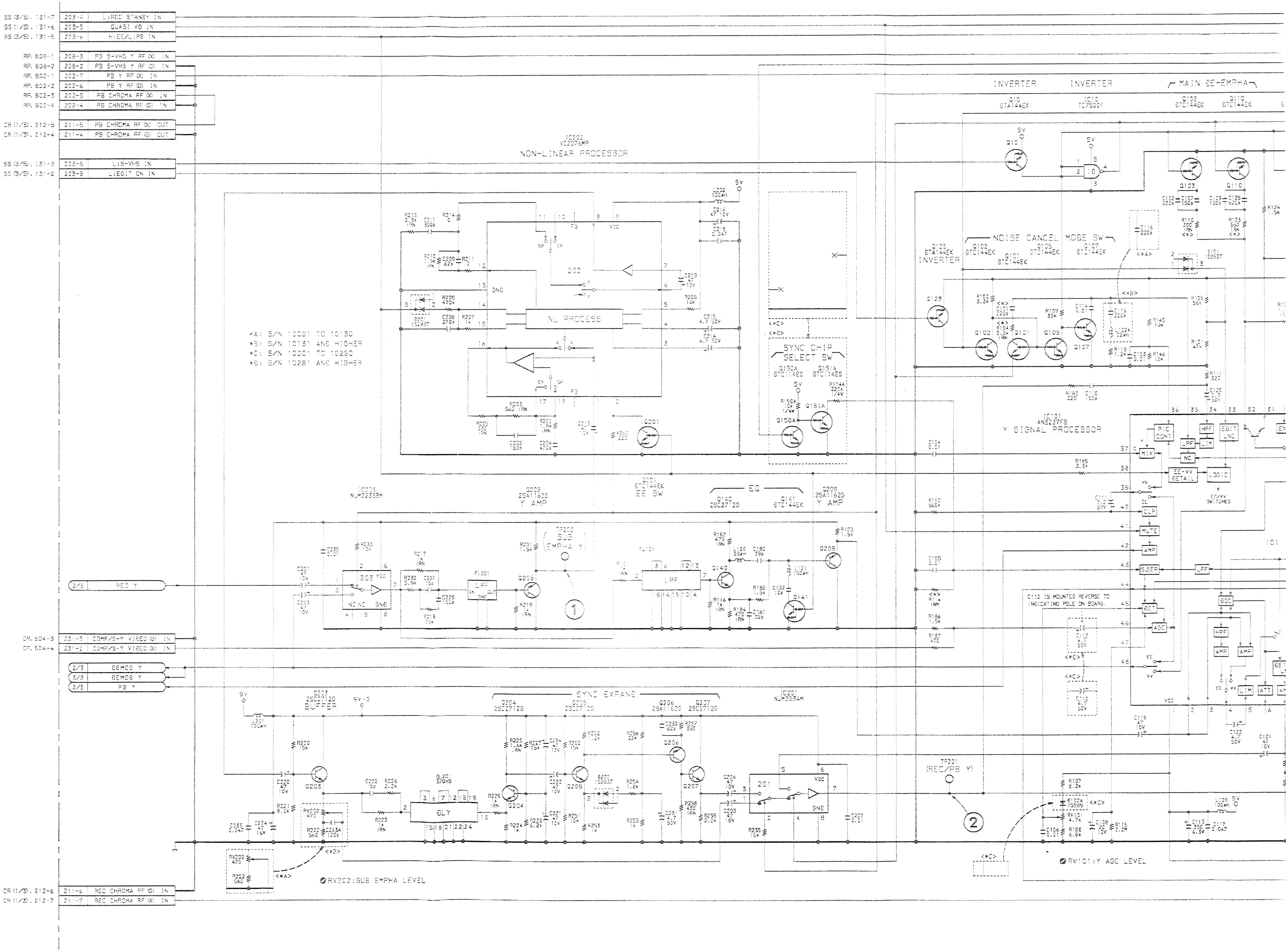


⑤ TP202 (L-1*) STOP (E-E) mode

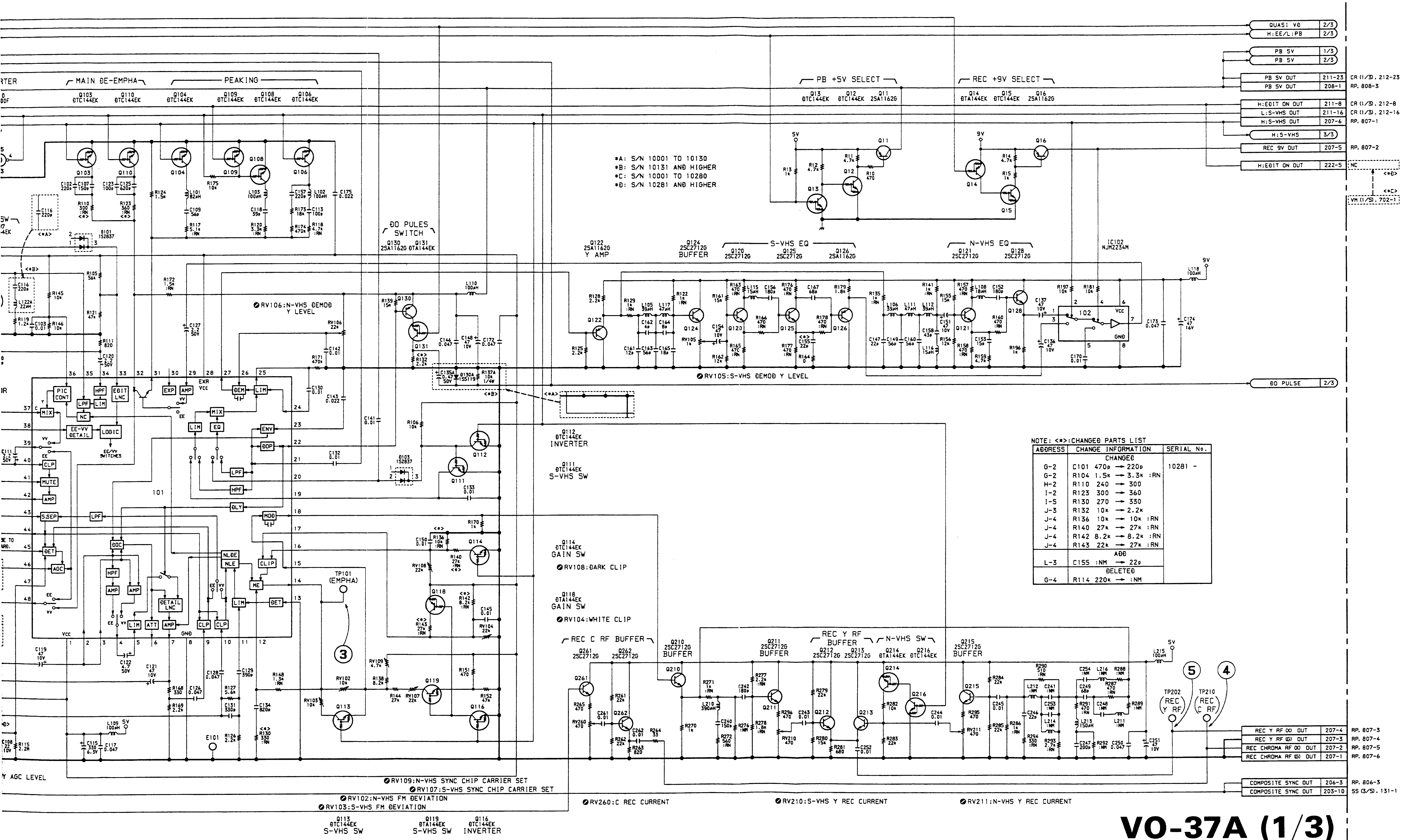


Measurement Condition
S-VIDEO IN: 75% color bars
STOP (E-E) mode: S-VHS

* mark; B SIDE mount


SS (3/5), 131-7 203-4 L:REC STANBY IN
SS (1/5), 131-6 203-5 QUASI VD IN
SS (3/5), 131-5 203-6 H:EE/L:PB IN
RP, 808-1 208-3 PB S-VHS Y RF (X) IN
RP, 808-2 208-2 PB S-VHS Y RF (G) IN
RP, 802-1 202-7 PB Y RF (X) IN
RP, 802-2 202-6 PB Y RF (G) IN
RP, 802-3 202-5 PB CHROMA RF (X) IN
RP, 802-4 202-4 PB CHROMA RF (G) IN
CR (1/3), 212-5 211-5 PB CHROMA RF (X) OUT
CR (1/3), 212-4 211-4 PB CHROMA RF (G) OUT
SS (3/5), 131-3 203-8 L:S-VHS IN
SS (3/5), 131-2 203-9 L:EDIT ON IN
IC202 VC2076*P NON-LINEAR PROCESSOR
NL PROCESS
*A: S/N 10001 TO 10130
*B: S/N 10131 AND HIGHER
*C: S/N 10001 TO 10280
*D: S/N 10281 AND HIGHER
INVERTER
INVERTER
MAIN DE-EMPHA
NOISE CANCEL MODE SW
SYNC CHIP SELECT SW
IC101 AN3227FB Y SIGNAL PROCESSOR
IC203 NJM2233BM
Q208 2SA1162G Y AMP
Q201 DTC144EK EE SW
EQ
Q209 2SA1162G Y AMP
TP202 (SUB EMPHA Y)
2/3 REC Y
CP, 504-3 231-1 COMP/S-Y VIDEO (G) IN
CP, 504-4 231-2 COMP/S-Y VIDEO (X) IN
2/3 DEMOD Y
3/3 DEMOD Y
2/3 PB Y
Q203 2SC2712G BUFFER
SYNC EXPAND
IC201 NJM2234M
DLY
TP201 (REC/PB Y)
C112 IS MOUNTED REVERSE TO INDICATING POLE ON BOARD.
RV202:SUB EMPHA LEVEL
RV101:Y AGC LEVEL
CR (1/3), 212-6 211-6 REC CHROMA RF (G) IN
CR (1/3), 212-7 211-7 REC CHROMA RF (X) IN

A | B | C | D | E | F | G | H |


MAIN DE-EMPHA
PEAKING
PB +5V SELECT
REC +9V SELECT
QUASI VD 2/3
H:EE/L:PB 2/3
PB 5V 1/3
PB 5V 2/3
PB 5V OUT 211-23 CR (1/3). 212-23
PB 5V OUT 208-1 RP. 808-3
H:EDIT ON OUT 211-8 CR (1/3). 212-8
L:S-VHS OUT 211-16 CR (1/3). 212-16
H:S-VHS OUT 207-6 RP. 807-1
H:S-VHS 3/3
REC 9V OUT 207-5 RP. 807-2
H:EDIT ON OUT 222-5 NC
<*C>
VM (1/3). 702-1
DD PULES SWITCH
Q122 2SA1162G Y AMP
Q124 2SC2712G BUFFER
S-VHS EQ
N-VHS EQ
IC102 NJM2234M
DD PULSE 2/3
ⓇRV106:N-VHS DEMOD Y LEVEL
ⓇRV105:S-VHS DEMOD Y LEVEL
Q112 DTC144EK INVERTER
Q111 DTC144EK S-VHS SW
Q114 DTC144EK GAIN SW
ⓇRV108:DARK CLIP
Q118 DTA144EK GAIN SW
ⓇRV104:WHITE CLIP
TP101 (EMPHA)
REC C RF BUFFER
REC Y RF BUFFER
N-VHS SW
Q210 2SC2712G BUFFER
Q211 2SC2712G BUFFER
Q215 2SC2712G BUFFER
TP202 (REC Y RF)
TP210 (REC C RF)
REC Y RF (N) OUT 207-4 RP. 807-3
REC Y RF (S) OUT 207-3 RP. 807-4
REC CHROMA RF (N) OUT 207-2 RP. 807-5
REC CHROMA RF (S) OUT 207-1 RP. 807-6
COMPOSITE SYNC OUT 206-3 RP. 806-3
COMPOSITE SYNC OUT 203-10 SS (3/3). 131-1
Y AGC LEVEL
ⓇRV109:N-VHS SYNC CHIP CARRIER SET
ⓇRV107:S-VHS SYNC CHIP CARRIER SET
ⓇRV102:N-VHS FM DEVIATION
ⓇRV103:S-VHS FM DEVIATION
ⓇRV260:C REC CURRENT
ⓇRV210:S-VHS Y REC CURRENT
ⓇRV211:N-VHS Y REC CURRENT
Q113 DTC144EK S-VHS SW
Q119 DTA144EK S-VHS SW
Q116 DTC144EK INVERTER
101
③
④
⑤
1
2
3
4
5

*A: S/N 10001 TO 10130
*B: S/N 10131 AND HIGHER
*C: S/N 10001 TO 10280
*D: S/N 10281 AND HIGHER

NOTE: <*>:CHANGED PARTS LIST

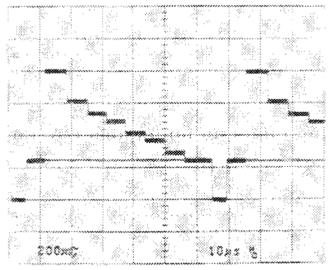
ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
G-2	C101 470p → 220p	10281 -
G-2	R104 1.5k → 3.3k :RN	
H-2	R110 240 → 300	
I-2	R123 300 → 360	
I-5	R130 270 → 330	
J-3	R132 10k → 2.2k	
J-4	R136 10k → 10k :RN	
J-4	R140 27k → 27k :RN	
J-4	R142 8.2k → 8.2k :RN	
J-4	R143 22k → 27k :RN	
	ADD	
L-3	C155 :NM → 22p	
	DELETED	
G-4	R114 220k → :NM	

VO-37A (1/3)

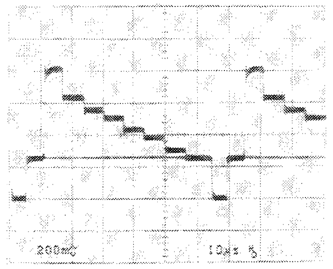
1-641-585-12 (1)
SVO-9500MDP

VO-37A (2/3) ; DIGITAL COMB FILTER & PB Y/C OUTPUT

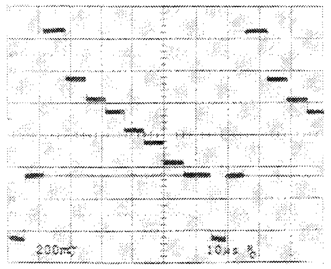
① TP301 (C-5*) STOP (E-E) mode



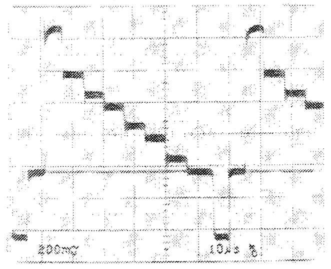
TP301 (C-5*) PB mode



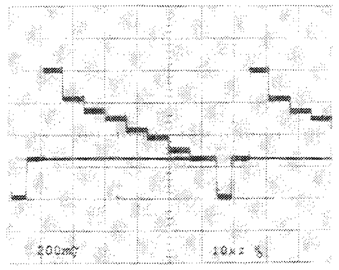
② TP302 (A-5*) STOP (E-E) mode



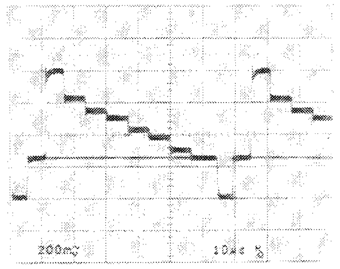
TP302 (A-5*) PB mode



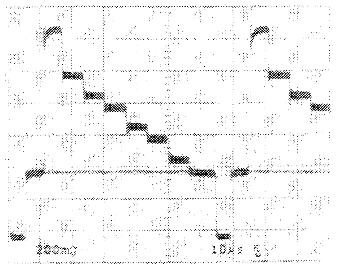
③ TP303 (D-4*) STOP (E-E) mode



TP303 (D-4*) PB mode

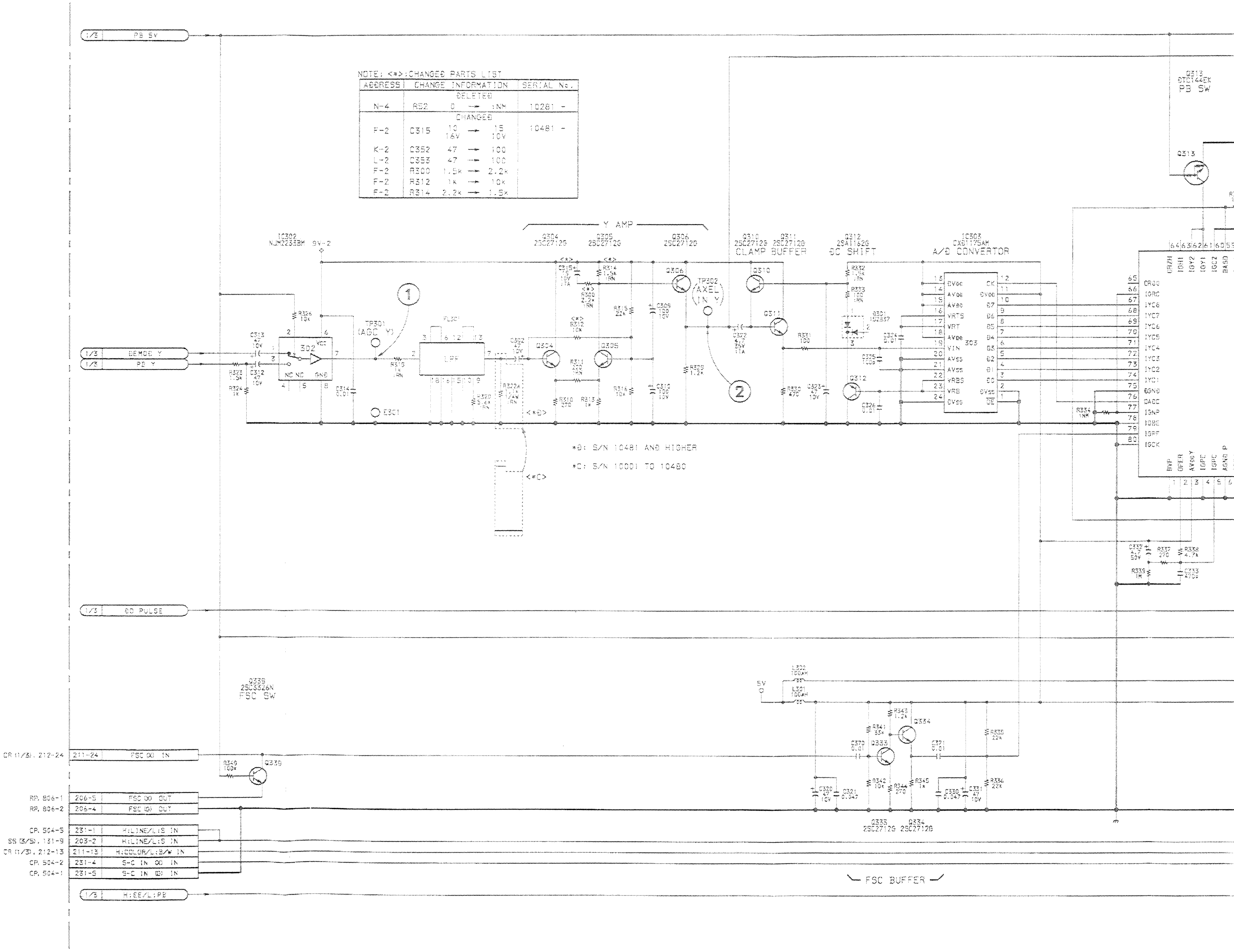


④ TP304 (D-2*) PB mode



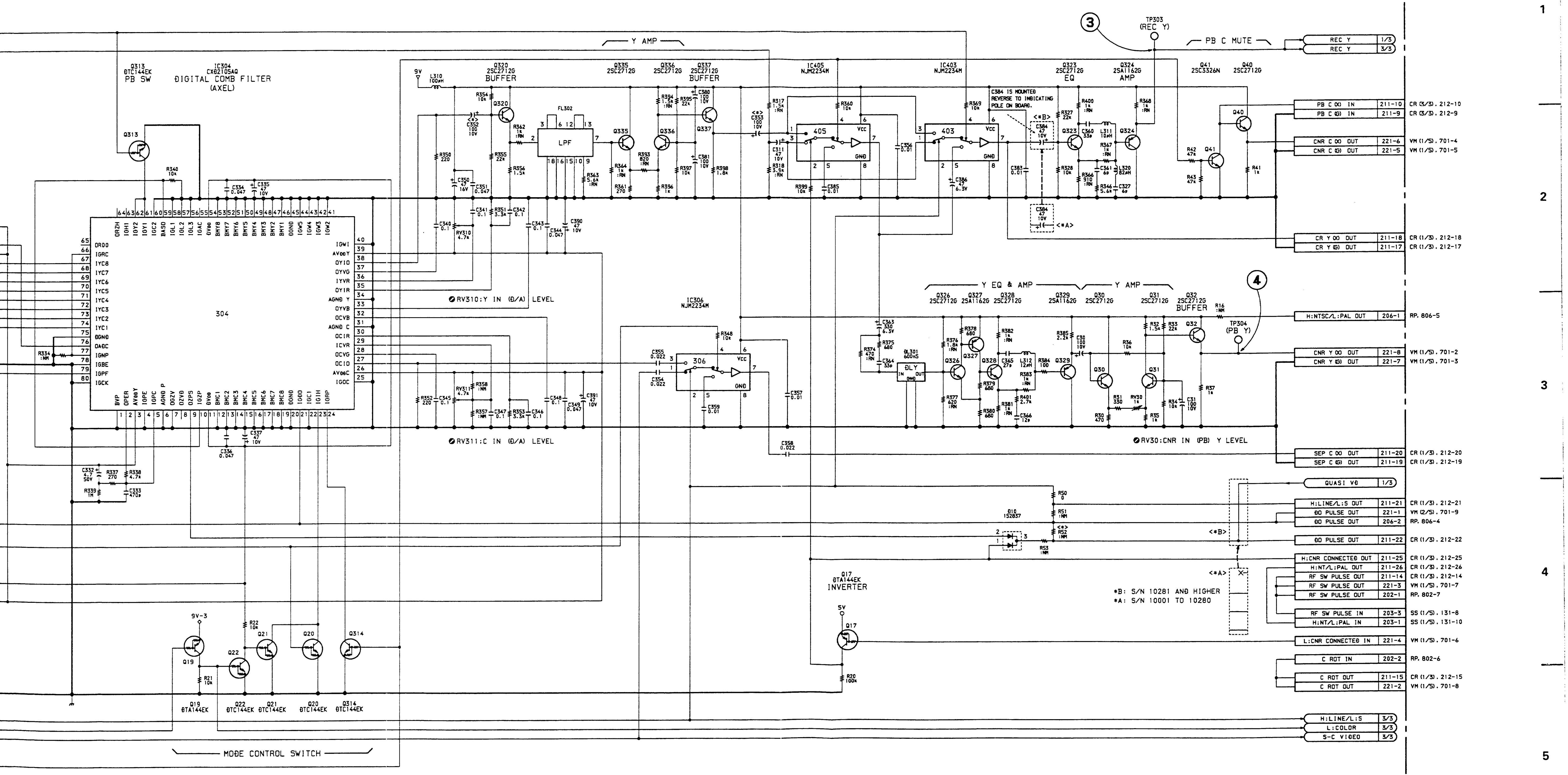
Measurement Condition
S-VIDEO IN: 75% color bars
STOP (E-E) mode: S-VHS
PB mode: KRV-45HPS

* mark: B SIDE mount


1/3
PB 5V
DEMOD Y
PB Y
SD PULSE
H:SE/L:PB
IC302
NJM2233BM
9V-2
C313
47
10V
C312
47
10V
R323
1.5k
R324
1k
R326
10k
302
VCC
NC NC
GND
C314
0.01
TP301
(AGC Y)
①
R310
1k
FL301
LPF
E301
C302
47
10V
R322A
R320
5.6k
<*D>
<*C>
*D: S/N 10481 AND HIGHER
*C: S/N 10001 TO 10480
Y AMP
Q304
2SC2712G
Q305
2SC2712G
Q306
2SC2712G
C315
10
10V
R314
1.5k
R300
2.2k
R312
10k
R311
220
R313
1k
R316
10k
R315
22k
C309
100
10V
C310
100
10V
R329
1.2k
TP302
(AXEL IN Y)
②
Q310
2SC2712G
Q311
2SC2712G
CLAMP BUFFER
C322
4.7
25V
R330
470
R331
100
Q312
2SA1162G
DC SHIFT
R332
1.5k
R333
100
D301
1SS357
C323
47
10V
C324
0.01
C325
1000
C326
0.01
IC303
CXD1175AM
A/D CONVERTOR
303
DVDD
AVDD
VRTS
VRT
YIN
AVSS
VRBS
VRB
DVSS
CK
D7
D6
D5
D4
D3
D2
D1
D0
OE
R334
1M
Q313
DTC144EK
PB SW
CR00
IGRC
IYC8
IYC7
IYC6
IYC5
IYC4
IYC3
IYC2
IYC1
DGND
DACC
IGNP
IGBC
IGFF
IGCK
C337
4.7
50V
R337
270
R338
4.7k
R339
1M
C373
Q339
2SD3326N
FSC SW
R349
100k
L302
100μH
L301
100μH
5V
R343
1.2k
R341
33k
R342
10k
R344
270
R345
1k
C370
0.01
C371
0.01
C320
47
10V
C321
0.047
C330
0.047
C331
47
10V
R335
22k
R336
22k
Q333
2SC2712G
Q334
2SC2712G
FSC BUFFER
CR (1/3), 212-24
211-24
FSC (X) IN
RP, 806-1
206-5
FSC (X) OUT
RP, 806-2
206-4
FSC (G) OUT
CP, 504-5
231-1
H:LINE/L:S IN
SS (3/5), 131-9
203-2
H:LINE/L:S IN
CR (1/3), 212-13
211-13
H:COLOR/L:B/W IN
CP, 504-2
231-4
S-C IN (X) IN
CP, 504-1
231-5
S-C IN (G) IN

NOTE; <*>:CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION	SERIAL No.
	DELETED	
N-4	R52 0 → 1NM	10281 ~
	CHANGED	
F-2	C315 10 16V → 15 10V	10481 ~
K-2	C352 47 → 100	
L-2	C353 47 → 100	
F-2	R300 1.5k → 2.2k	
F-2	R312 1k → 10k	
F-2	R314 2.2k → 1.5k	


Q313 DTC144EK PB SW
IC304 CXD2105AQ DIGITAL COMB FILTER (AXEL)
304
Y AMP
Q320 2SC2712G BUFFER
FL302
LPF
Q335 2SC2712G
Q336 2SC2712G
Q337 2SC2712G BUFFER
IC405 NJM2234M
405
IC403 NJM2234M
403
C384 IS MOUNTED REVERSE TO INDICATING POLE ON BOARD.
Q323 2SC2712G EQ
Q324 2SA1162G AMP
③
TP303 (REC Y)
PB C MUTE
Q41 2SC3326N
Q40 2SC2712G
REC Y 1/3
REC Y 3/3
PB C (X) IN 211-10 CR (3/3). 212-10
PB C (G) IN 211-9 CR (3/3). 212-9
CNR C (X) OUT 221-6 VM (1/5). 701-4
CNR C (G) OUT 221-5 VM (1/5). 701-5
CR Y (X) OUT 211-18 CR (1/3). 212-18
CR Y (G) OUT 211-17 CR (1/3). 212-17
RV310:Y IN (D/A) LEVEL
IC306 NJM2234M
306
Y EQ & AMP
Y AMP
Q326 2SC2712G
Q327 2SA1162G
Q328 2SC2712G
Q329 2SA1162G
Q30 2SC2712G
Q31 2SC2712G
Q32 2SC2712G BUFFER
④
TP304 (PB Y)
DL301 600nS
DLY
H:NTSC/L:PAL OUT 206-1 RP. 806-5
CNR Y (X) OUT 221-8 VM (1/5). 701-2
CNR Y (G) OUT 221-7 VM (1/5). 701-3
RV311:C IN (D/A) LEVEL
RV30:CNR IN (PB) Y LEVEL
SEP C (X) OUT 211-20 CR (1/3). 212-20
SEP C (G) OUT 211-19 CR (1/3). 212-19
QUASI VD 1/3
H:LINE/L:S OUT 211-21 CR (1/3). 212-21
BD PULSE OUT 221-1 VM (2/5). 701-9
BD PULSE OUT 206-2 RP. 806-4
BD PULSE OUT 211-22 CR (1/3). 212-22
D10 1SS237
<*B>
<*A>
H:CNR CONNECTED OUT 211-25 CR (1/3). 212-25
H:NT/L:PAL OUT 211-26 CR (1/3). 212-26
RF SW PULSE OUT 211-14 CR (1/3). 212-14
RF SW PULSE OUT 221-3 VM (1/5). 701-7
RF SW PULSE OUT 202-1 RP. 802-7
*B: S/N 10281 AND HIGHER
*A: S/N 10001 TO 10280
RF SW PULSE IN 203-3 SS (1/5). 131-8
H:NT/L:PAL IN 203-1 SS (1/5). 131-10
Q17 DTA144EK INVERTER
L:CNR CONNECTED IN 221-4 VM (1/5). 701-6
C ROT IN 202-2 RP. 802-6
C ROT OUT 211-15 CR (1/3). 212-15
C ROT OUT 221-2 VM (1/5). 701-8
9V-3
Q19 DTA144EK
Q22 DTC144EK
Q21 DTC144EK
Q20 DTC144EK
Q314 DTC144EK
MODE CONTROL SWITCH
H:LINE/L:S 3/3
L:COLOR 3/3
S-C VIDEO 3/3
1
2
3
4
5

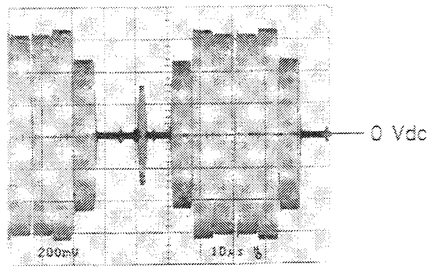
VO-37A (2/3)

1-641-585-12 (1)
SVO-9500MDP

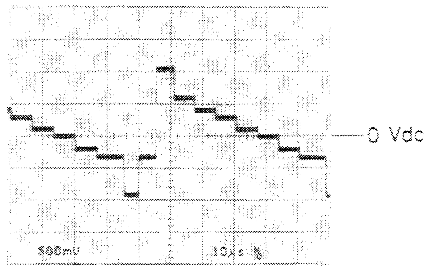
VO-37A (3/3), DUS-592

VO-37A (3/3) ; Y/C MIX, VIDEO/S-VIDEO OUTPUT
DUS-592

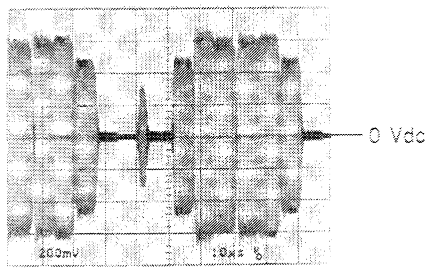
① TP491 (H-1＊) STOP (E-E) mode



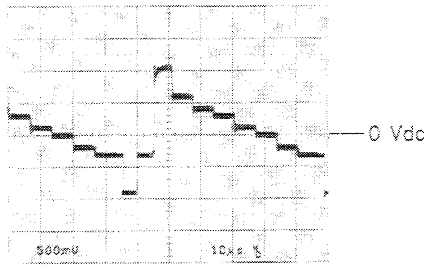
② TP492 (G-1＊) STOP (E-E) mode



TP491 (H-1＊) PB mode



TP492 (G-1＊) PB mode



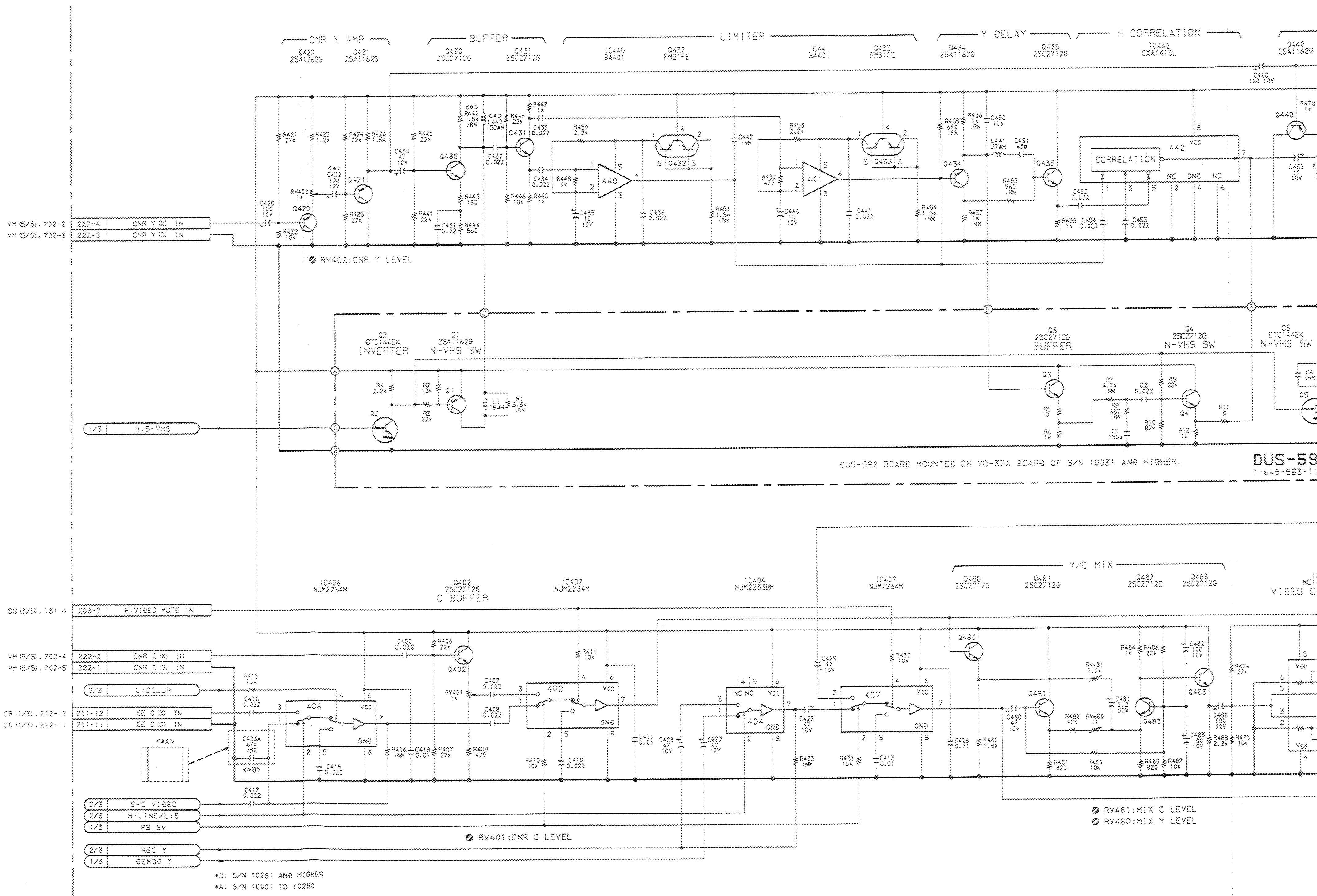
Measurement Condition

S-VIDEO IN: 75% color bars

STOP (E-E) mode: S-VHS

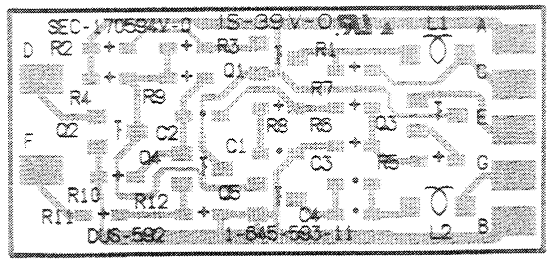
PB mode: KRV-45HPS

＊ mark: B SIDE mount

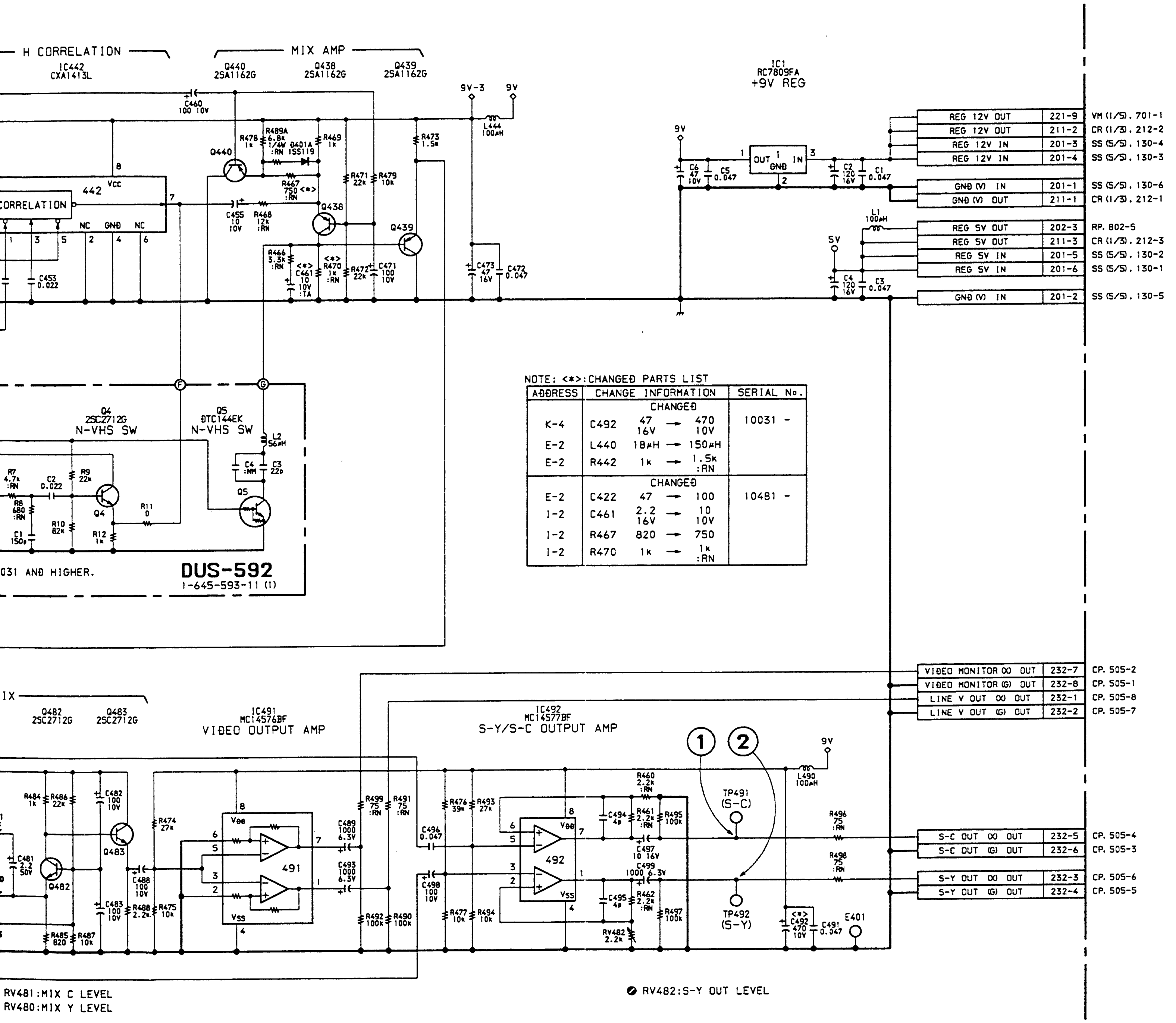

CNR Y AMP
BUFFER
LIMITER
Y DELAY
H CORRELATION
CORRELATION
442
Q421 2SA1162G
Q430 2SC2712G
Q431 2SC2712G
IC440 BA401
Q432 FMS1FE
IC441 BA401
Q433 FMS1FE
Q434 2SA1162G
Q435 2SC2712G
IC442 CXA1413L
Q440 2SA1162G
VM (5/5), 702-2
VM (5/5), 702-3
222-4 CNR Y (X) IN
222-3 CNR Y (G) IN
RV402:CNR Y LEVEL
Q2 DTC144EK INVERTER
Q1 2SA1162G N-VHS SW
Q3 2SC2712G BUFFER
Q4 2SC2712G N-VHS SW
Q5 DTC144EK N-VHS SW
(1/3) H:S-VHS
DUS-592 BOARD MOUNTED ON VO-37A BOARD OF S/N 10031 AND HIGHER.
DUS-59
1-645-593-11
Y/C MIX
IC406 NJM2234M
Q402 2SC2712G C BUFFER
IC402 NJM2234M
IC404 NJM2233BM
IC407 NJM2234M
Q480 2SC2712G
Q481 2SC2712G
Q482 2SC2712G
Q483 2SC2712G
VIDEO O
SS (3/5), 131-4
203-7 H:VIDEO MUTE IN
VM (5/5), 702-4
VM (5/5), 702-5
222-2 CNR C (X) IN
222-1 CNR C (G) IN
(2/3) L:COLOR
CR (1/3), 212-12
CR (1/3), 212-11
211-12 EE C (X) IN
211-11 EE C (G) IN
406
402
404
407
(2/3) S-C VIDEO
(2/3) H:LINE/L:S
(1/3) PB SY
(2/3) REC Y
(1/3) DEMOD Y
RV401:CNR C LEVEL
RV481:MIX C LEVEL
RV480:MIX Y LEVEL

＊B: S/N 10281 AND HIGHER

＊A: S/N 10001 TO 10280


SEC-170594V-0 1S-39V-0
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
Q1
Q2
Q3
Q4
Q5
C1
C2
C3
C4
C5
L1
L2
A
B
C
D
E
F
G
DUS-592 1-645-593-11

DUS-592 — COMPONENT SIDE —
1-645-593-11 (1)
SVO-9500MDP


H CORRELATION
IC442
CXA1413L
MIX AMP
Q440
2SA1162G
Q438
2SA1162G
Q439
2SA1162G
IC1
RC7809FA
+9V REG
9V-3
9V
L444
100µH
CORRELATION
442
VCC
NC GND NC
C453
0.022
C440
100 10V
R489A
6.8k
1/4W
D401A
1SS119
R467
750 <*>
:RN
C455
10
10V
R468
12k
:RN
R466
3.3k
:RN
<*>
C461
10
10V
:TA
<*>
R470
1k
:RN
R471
22k
R472
22k
R479
10k
C471
100
10V
R473
1.5k
C473
47
16V
C472
0.047
C6
47
10V
C5
0.047
OUT
IN
GND
C2
120
16V
C1
0.047
L1
100µH
5V
C4
120
16V
C3
0.047
REG 12V OUT | 221-9 | VM (1/5). 701-1
REG 12V OUT | 211-2 | CR (1/3). 212-2
REG 12V IN | 201-3 | SS (5/5). 130-4
REG 12V IN | 201-4 | SS (5/5). 130-3
GND (V) IN | 201-1 | SS (5/5). 130-6
GND (V) OUT | 211-1 | CR (1/3). 212-1
REG 5V OUT | 202-3 | RP. 802-5
REG 5V OUT | 211-3 | CR (1/3). 212-3
REG 5V IN | 201-5 | SS (5/5). 130-2
REG 5V IN | 201-6 | SS (5/5). 130-1
GND (V) IN | 201-2 | SS (5/5). 130-5
Q4
2SC2712G
N-VHS SW
Q5
DTC144EK
N-VHS SW
L2
56µH
R7
4.7k
:RN
C2
0.022
R9
22k
R8
680
:RN
R10
82k
C1
150p
R11
0
R12
1k
C4
:NM
C3
22p
031 AND HIGHER.
DUS-592
1-645-593-11 (1)
VIDEO MONITOR (X) OUT | 232-7 | CP. 505-2
VIDEO MONITOR (G) OUT | 232-8 | CP. 505-1
LINE V OUT (X) OUT | 232-1 | CP. 505-8
LINE V OUT (G) OUT | 232-2 | CP. 505-7
IX
Q482
2SC2712G
Q483
2SC2712G
IC491
MC14576BF
VIDEO OUTPUT AMP
IC492
MC14577BF
S-Y/S-C OUTPUT AMP
①
②
TP491
(S-C)
TP492
(S-Y)
L490
100µH
R496
75
:RN
R498
75
:RN
E401
<*>
C492
470
10V
C491
0.047
491
492
VDD
VSS
R484
1k
R486
22k
C482
100
10V
C481
2.2
50V
C483
100
10V
C488
100
10V
R488
2.2k
R475
10k
R474
27k
R485
820
R487
10k
C489
1000
6.3V
C493
1000
6.3V
R499
75
:RN
R491
75
:RN
R492
100k
R490
100k
C496
0.047
C498
100
10V
R476
39k
R493
27k
R477
10k
R494
10k
R460
2.2k
:RN
C494
4p
R461
2.2k
:RN
R495
100k
C497
10 16V
C499
1000 6.3V
C495
4p
R462
2.2k
:RN
R497
100k
RV482
2.2k
S-C OUT (X) OUT | 232-5 | CP. 505-4
S-C OUT (G) OUT | 232-6 | CP. 505-3
S-Y OUT (X) OUT | 232-3 | CP. 505-6
S-Y OUT (G) OUT | 232-4 | CP. 505-5
RV481:MIX C LEVEL
RV480:MIX Y LEVEL
RV482:S-Y OUT LEVEL
1
2
3
4
5
H
I
J
K
L
M
N
O
P

NOTE: <*>:CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION				SERIAL No.
			CHANGED		
K-4	C492	47 16V	→	470 10V	10031 -
E-2	L440	18µH	→	150µH	
E-2	R442	1k	→	1.5k :RN	
			CHANGED		
E-2	C422	47	→	100	10481 -
I-2	C461	2.2 16V	→	10 10V	
I-2	R467	820	→	750	
I-2	R470	1k	→	1k :RN	

VO-37A (3/3)

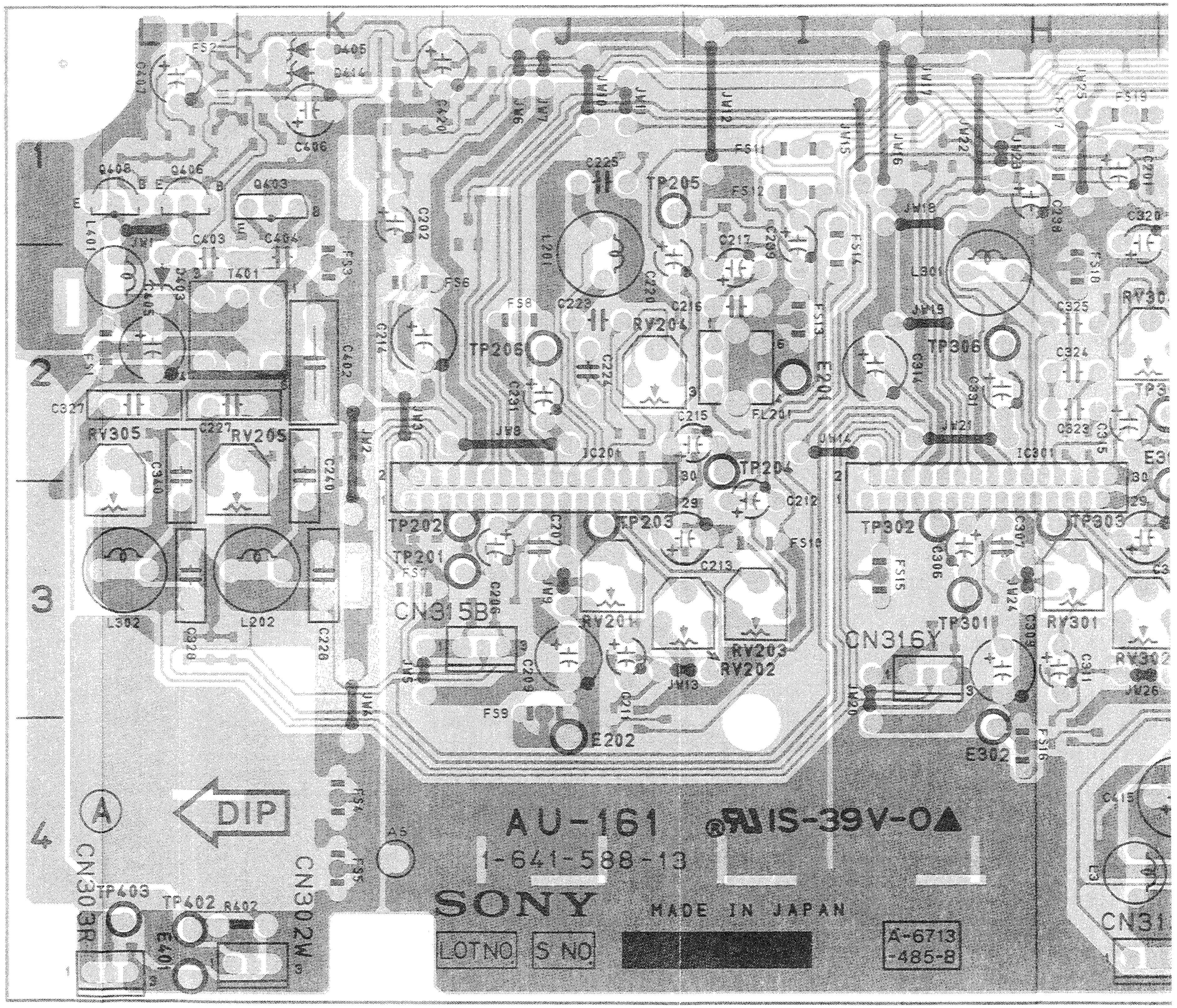
1-641-585-12 (1)
SVO-9500MDP

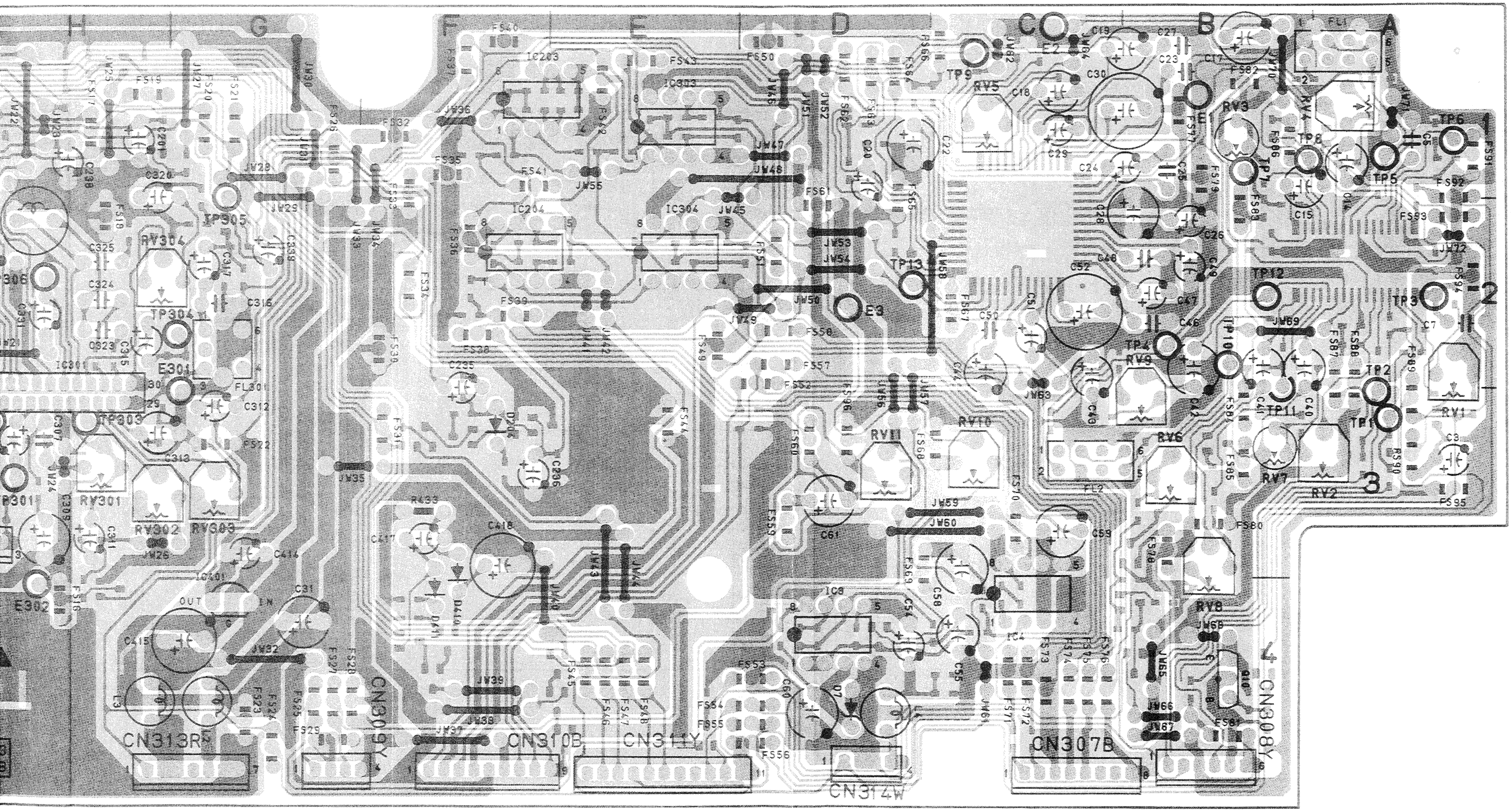
AU-161A ; AFM PROCESS/NORMAL AUDIO PROCESS

AU-161A (1-641-588-13)

∗ mark ; B SIDE mount

CN302	K-4
CN303	L-4
CN307	C-4
CN308	B-4
CN309	F-4
CN310	F-4
CN311	E-4
CN313	H-4
CN314	D-4
CN315	K-3
CN316	I-3
D2	A-3 ∗
D5	B-4 ∗
D6	D-4 ∗
D7	D-4
D8	D-2 ∗
D201	K-1 ∗
D202	I-2 ∗
D203	J-1 ∗
D204	F-3
D302	H-1 ∗
D303	F-4 ∗
D403	L-2
D404	K-1 ∗
D405	K-1
D406	L-1 ∗
D409	F-4 ∗
D410	F-4
D411	F-4
E1	B-1
E2	C-1
E3	D-2
E201	I-2
E202	J-4
E301	H-2
E302	H-4
E401	L-4
FL1	A-1
FL2	C-3
FL201	I-2
FL301	G-3
IC1	A-2 ∗
IC2	C-2 ∗
IC3	D-4
IC4	C-4
IC5	D-1 ∗
IC201	J-2
IC203	F-1
IC204	F-2
IC301	H-2
IC303	E-1
IC304	E-2
IC401	G-4
Q5	E-4 ∗
Q8	B-4 ∗
Q10	B-4
Q12	C-3 ∗
Q13	C-3 ∗
Q14	A-1 ∗
Q15	B-3 ∗
Q201	H-1 ∗
Q203	J-4 ∗
Q207	I-1 ∗
Q211	F-3 ∗
Q212	F-3 ∗
Q213	E-3 ∗
Q303	H-4 ∗
Q307	G-2 ∗
Q312	K-1 ∗
Q313	E-4 ∗
Q314	F-4 ∗
Q403	K-1
Q404	K-1 ∗
Q406	L-1
Q407	K-1 ∗
Q408	L-1
Q409	L-1 ∗
Q414	H-1 ∗
Q416	F-4 ∗
Q422	F-4 ∗
RV1	A-3
RV2	A-3
RV3	B-1
RV4	B-1
RV5	C-1
RV6	B-3
RV7	B-3
RV8	B-4
RV9	B-2
RV10	C-3
RV11	D-3
RV201	J-3
RV202	I-3
RV203	I-3
RV204	J-2
RV205	L-2
RV301	H-3
RV302	H-3
RV303	G-3
RV304	H-2
RV305	L-2
TP1	A-3
TP2	A-3
TP3	A-2
TP4	B-2
TP5	A-1
TP6	A-1
TP7	B-1
TP8	B-1
TP9	C-1
TP10	B-2
TP11	B-3
TP12	B-2
TP13	D-2
TP201	K-3
TP202	K-3
TP203	J-3
TP204	I-2
TP205	J-1
TP206	J-2
TP301	H-3
TP302	I-3
TP303	H-3
TP304	H-2
TP305	G-2
TP306	H-2
TP402	L-4
TP403	L-4
T401	L-3


K
J
I
H
1
2
3
4
A
DIP
CN303R
CN302W
AU-161
IS-39V-0
1-641-588-13
SONY
MADE IN JAPAN
LOT NO
S NO
A-6713
-485-B
IC201
IC301
TP201
TP202
TP203
TP204
TP205
TP206
TP301
TP302
TP303
TP306
TP402
TP403
RV201
RV202
RV203
RV204
RV205
RV301
RV302
RV305
L201
L202
L301
L302
L401
T401
Q403
Q406
Q408
CN315B
CN316Y
E201
E202
E302
E401
FL201


H
G
F
E
D
C
B
A
1
2
3
4
E2
TP9
RV5
C18
C19
C27
C23
C17
C30
C29
C24
C25
C28
C26
C22
C20
FL1
RV3
RV4
TP6
TP8
TP7
TP5
C6
C15
C14
FS91
FS92
FS93
JW72
TP12
TP3
C7
RV1
TP2
TP1
C3
RV2
RV7
RV6
FS95
FS90
TP11
TP10
C40
C41
TP4
RV9
C43
C45
C46
C47
C48
C49
C52
C51
C50
C53
JW63
JW69
TP13
E3
JW58
FS61
JW53
JW54
JW50
JW49
FS50
FS57
FS52
JW56
JW57
RV11
RV10
FL2
FS60
FS58
FS70
C61
JW59
JW60
C59
C58
C54
C55
C56
C60
D7
IC3
IC4
RV8
JW68
JW65
JW66
JW67
Q10
FS81
FS80
CN308Y
CN307B
CN314W
FS71
FS72
FS73
FS74
FS75
FS76
JW64
FS53
FS54
FS55
FS56
FS59
CN311Y
CN310B
CN309Y
CN313R
FS46
FS47
FS48
FS45
JW39
JW38
JW37
JW43
JW44
JW40
C418
C417
R433
D410
D411
C236
C235
D206
FS44
FS41
FS39
FS38
FS37
JW41
JW42
IC203
IC303
IC204
IC304
JW36
JW45
JW46
JW47
JW48
JW51
JW52
JW55
FS43
FS50
FS40
FS35
FS36
FS34
FS33
FS32
FS26
JW30
JW31
JW28
JW29
JW33
JW34
JW35
TP305
RV304
TP304
C325
C324
C323
C326
C317
C339
C316
C315
C312
C313
C307
C309
C311
C414
C415
C31
C338
C201
FL301
IC301
IC401
OUT
IN
E301
E302
TP303
TP301
RV301
RV302
RV303
JW24
JW26
JW32
JW25
JW27
JW22
JW23
FS17
FS18
FS19
FS20
FS21
FS22
FS16
FS23
FS24
FS25
FS27
FS28
FS29
L3

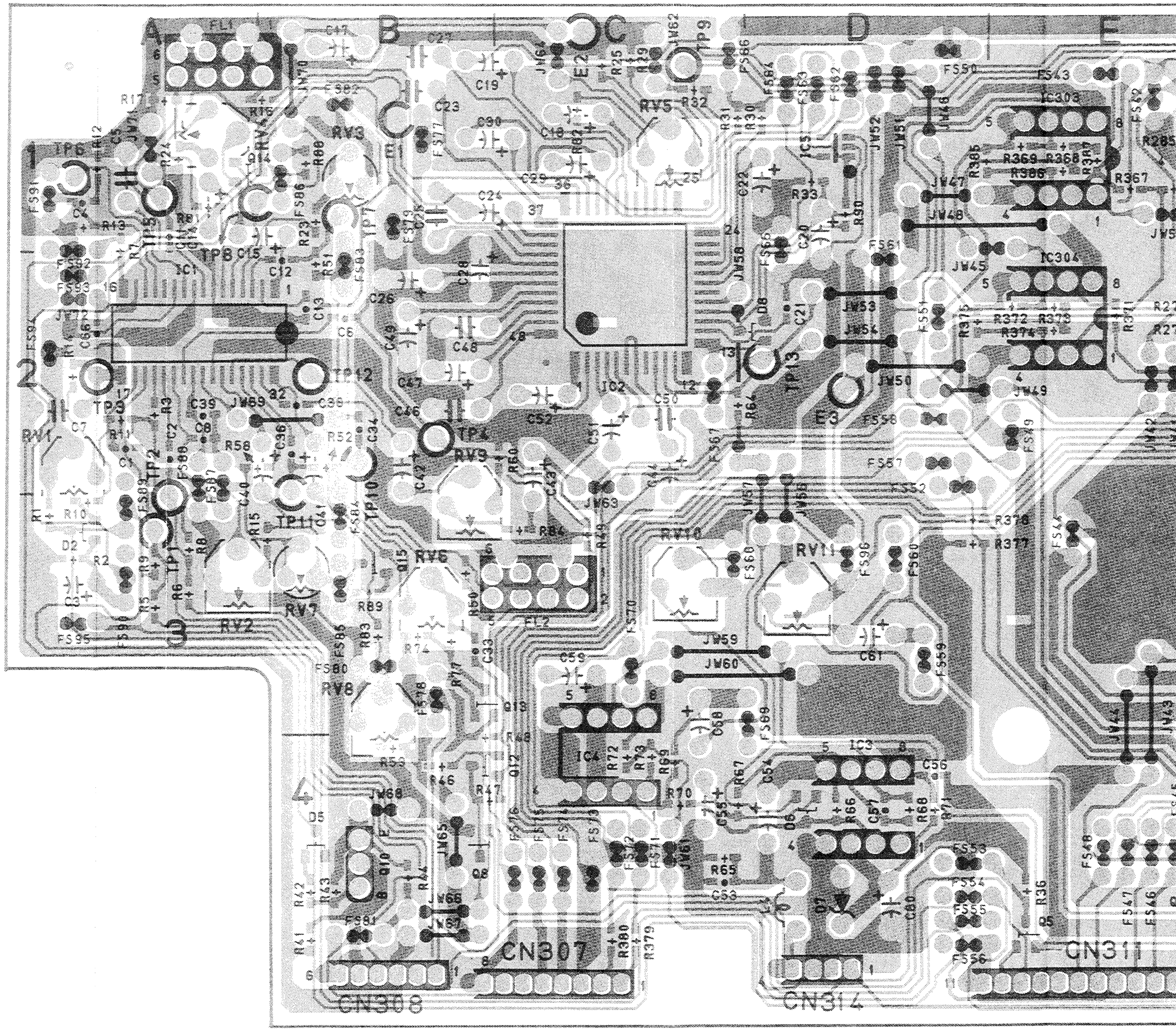
AU-161/A — A SIDE —
1-641-588-13 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

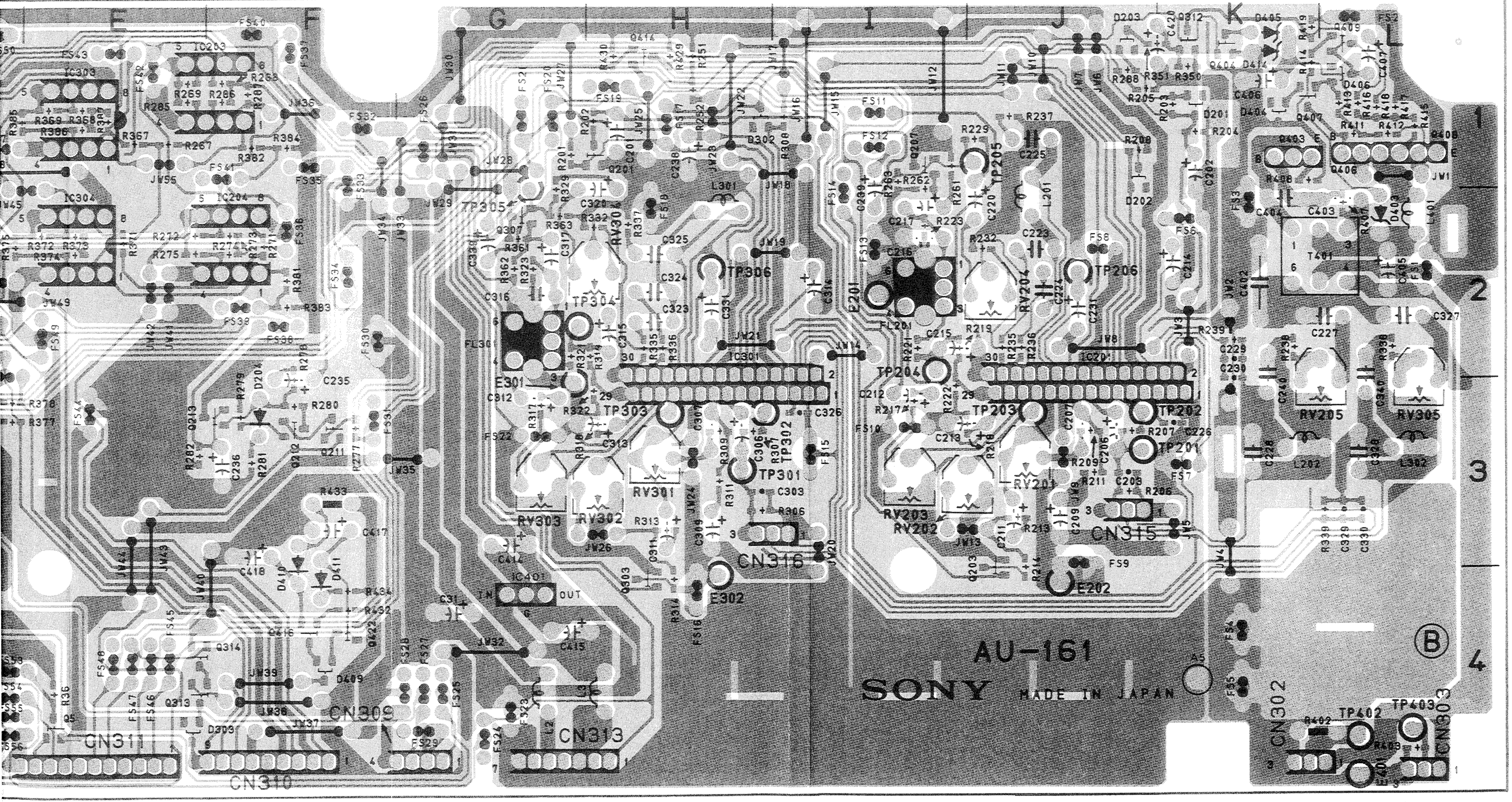
AU-161A : AFM PROCESS/NORMAL AUDIO PROCESS

AU-161A (1-641-588-13)

✻ mark : B SIDE mount

CN302	K-4	Q212	F-3 ✻
CN303	L-4	Q213	E-3 ✻
CN307	C-4	Q303	H-4 ✻
CN308	B-4	Q307	G-2 ✻
CN309	F-4	Q312	K-1 ✻
CN310	F-4	Q313	E-4 ✻
CN311	E-4	Q314	F-4 ✻
CN313	H-4	Q403	K-1
CN314	D-4	Q404	K-1 ✻
CN315	K-3	Q406	L-1
CN316	I-3	Q407	K-1 ✻
		Q408	L-1
D2	A-3 ✻	Q409	L-1 ✻
D5	B-4 ✻	Q414	H-1 ✻
D6	D-4 ✻	Q416	F-4 ✻
D7	D-4	Q422	F-4 ✻
D8	D-2 ✻		
D201	K-1 ✻	RV1	A-3
D202	I-2 ✻	RV2	A-3
D203	J-1 ✻	RV3	B-1
D204	F-3	RV4	B-1
D302	H-1 ✻	RV5	C-1
D303	F-4 ✻	RV6	B-3
D403	L-2	RV7	B-3
D404	K-1 ✻	RV8	B-4
D405	K-1	RV9	B-2
D406	L-1 ✻	RV10	C-3
D409	F-4 ✻	RV11	D-3
D410	F-4	RV201	J-3
D411	F-4	RV202	I-3
		RV203	I-3
E1	B-1	RV204	J-2
E2	C-1	RV205	L-2
E3	D-2	RV301	H-3
E201	I-2	RV302	H-3
E202	J-4	RV303	G-3
E301	H-2	RV304	H-2
E302	H-4	RV305	L-2
E401	L-4		
		TP1	A-3
FL1	A-1	TP2	A-3
FL2	C-3	TP3	A-2
FL201	I-2	TP4	B-2
FL301	G-3	TP5	A-1
		TP6	A-1
IC1	A-2 ✻	TP7	B-1
IC2	C-2 ✻	TP8	B-1
IC3	D-4	TP9	C-1
IC4	C-4	TP10	B-2
IC5	D-1 ✻	TP11	B-3
IC201	J-2	TP12	B-2
IC203	F-1	TP13	D-2
IC204	F-2	TP201	K-3
IC301	H-2	TP202	K-3
IC303	E-1	TP203	J-3
IC304	E-2	TP204	I-2
IC401	G-4	TP205	J-1
		TP206	J-2
Q5	E-4 ✻	TP301	H-3
Q8	B-4 ✻	TP302	I-3
Q10	B-4	TP303	H-3
Q12	C-3 ✻	TP304	H-2
Q13	C-3 ✻	TP305	G-2
Q14	A-1 ✻	TP306	H-2
Q15	B-3 ✻	TP402	L-4
Q201	H-1 ✻	TP403	L-4
Q203	J-4 ✻		
Q207	I-1 ✻	T401	L-3
Q211	F-3 ✻		

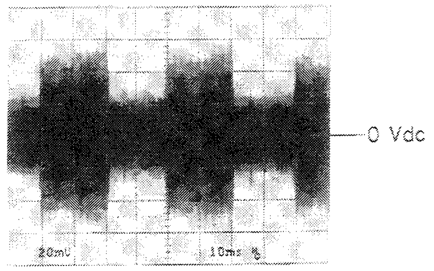

A
B
C
D
E
1
2
3
4
FL1
FL2
IC1
IC2
IC3
IC4
IC303
IC304
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
RV1
RV2
RV3
RV4
RV5
RV6
RV7
RV8
RV9
RV10
RV11
E1
E2
E3
CN307
CN308
CN311
CN314


E
F
G
H
I
J
K
L
1
2
3
4
IC303
IC203
IC304
IC204
IC301
IC201
IC401
IN
OUT
RV301
RV302
RV303
RV201
RV202
RV203
RV204
RV205
RV305
TP201
TP202
TP203
TP204
TP205
TP206
TP301
TP302
TP303
TP304
TP305
TP306
TP402
TP403
T401
FL301
FL201
E301
E201
E202
E302
CN302
CN303
CN309
CN310
CN311
CN313
CN315
CN316
AU-161
SONY
MADE IN JAPAN
B

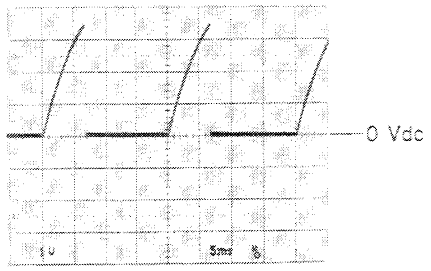
AU-161/A — B SIDE —
1-641-588-13 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

AU-161A (1/2) ; AFM PROCESS

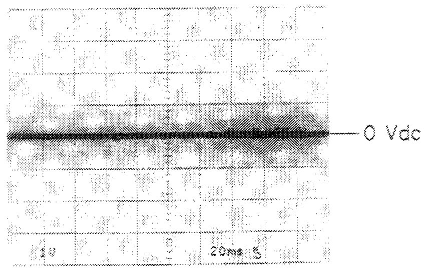
① TP1 (A-3) PB mode



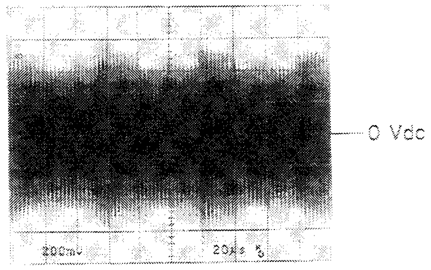
② TP3 (A-2) PB mode



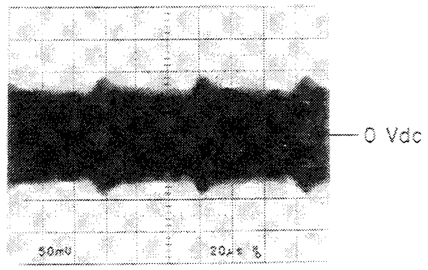
③ TP6 (A-1) PB mode



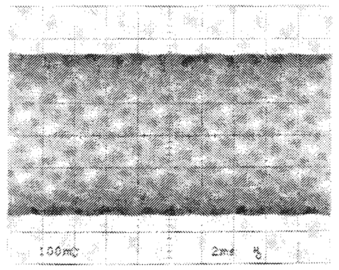
④ TP4 (B-2) PB mode



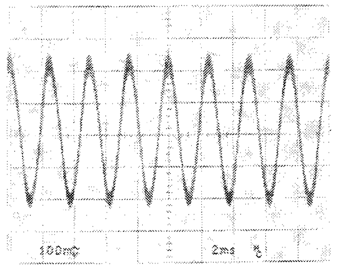
⑤ TP5 (A-1) PB mode



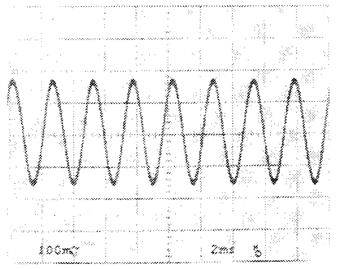
⑥ TP7 (B-1) STOP (E-E) mode



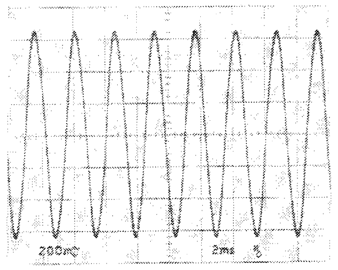
⑦ TP8 (B-1) PB mode



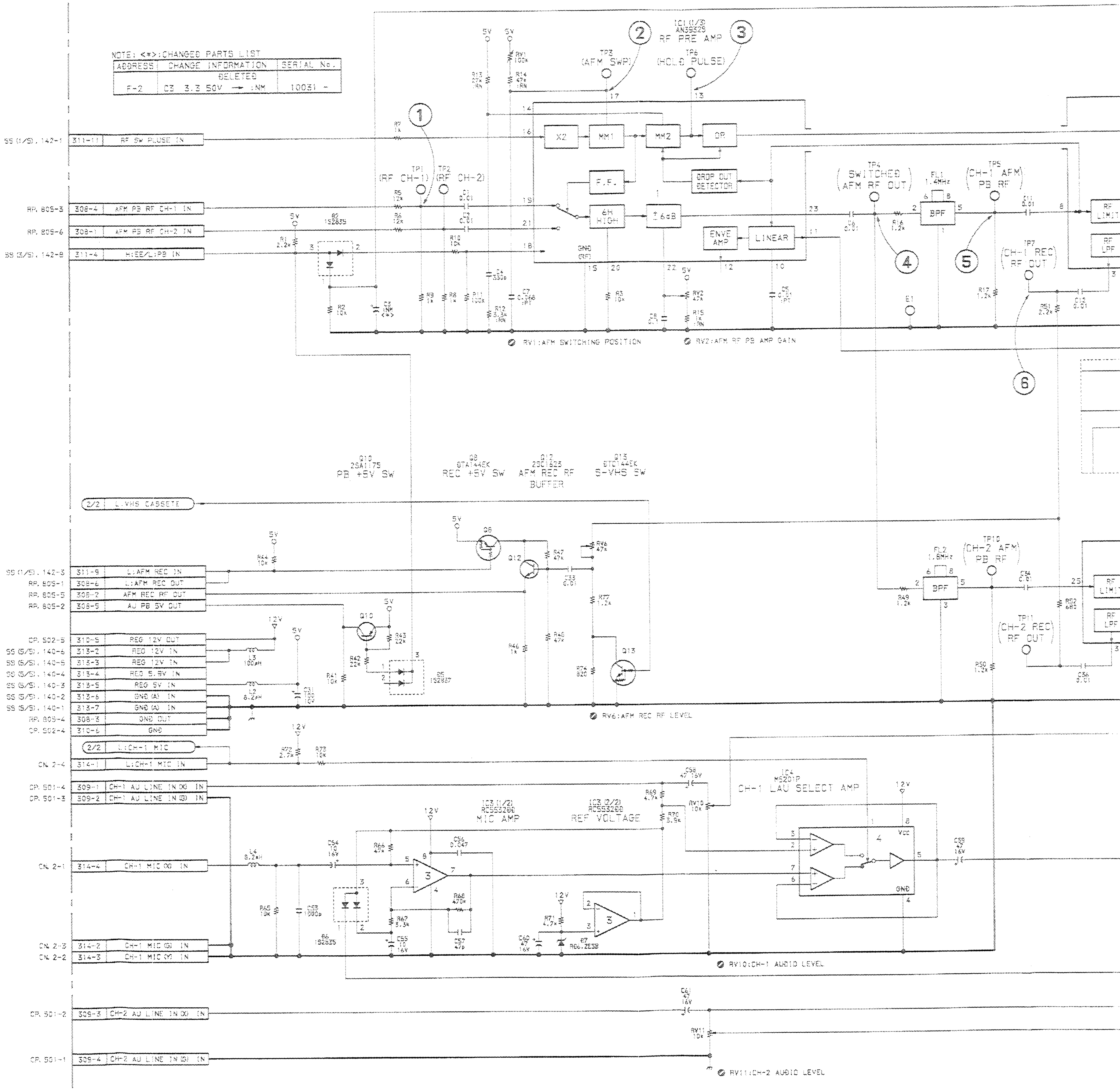
TP8 (B-1) REC mode

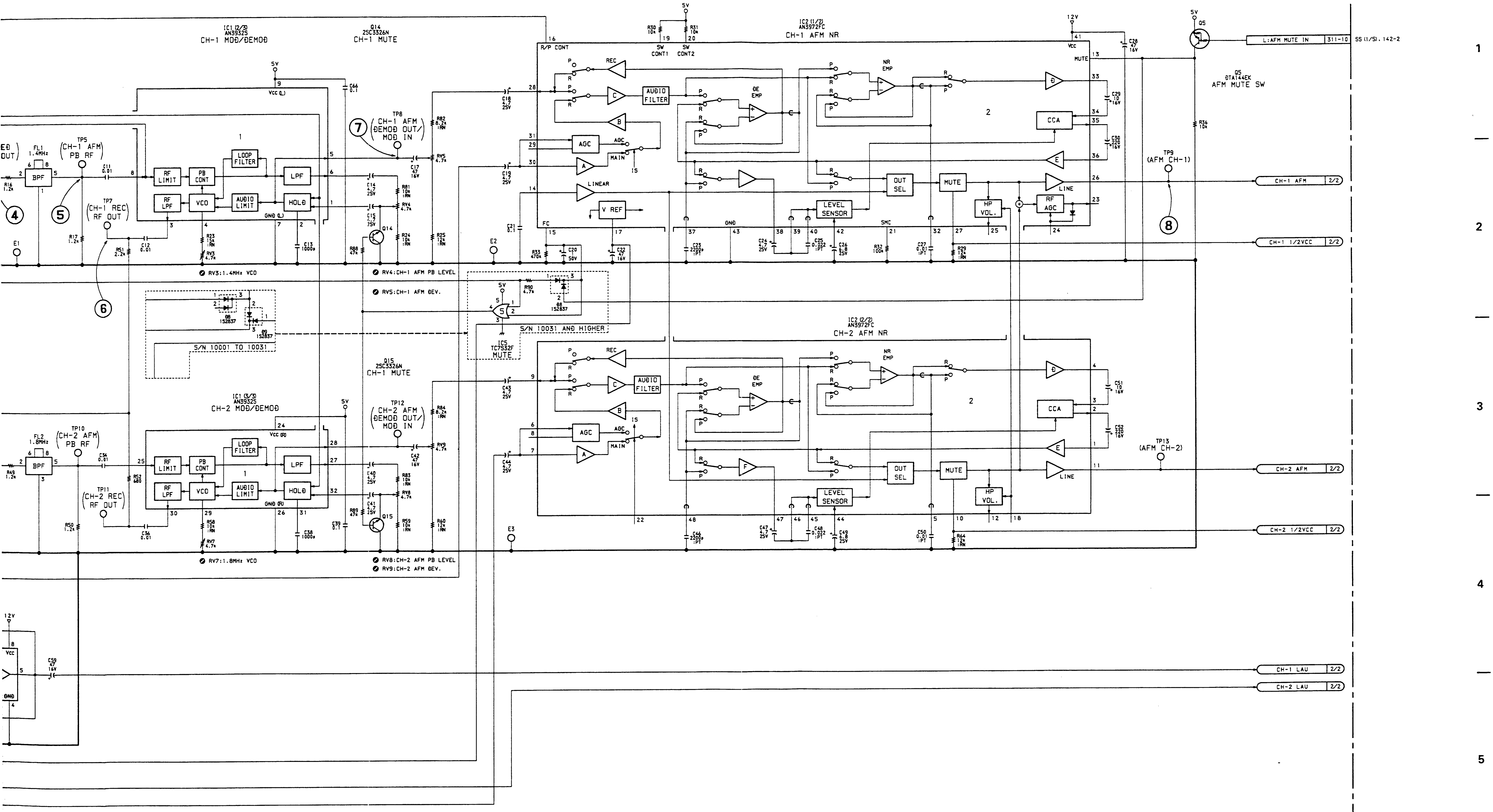


⑧ TP9 (C-1) STOP (E-E) mode



Measurement Condition
CH-1, AUDIO IN: 400 Hz, −10 dBu
STOP (E-E) mode: N-VHS
PB mode: KRV-45PS


NOTE: <*>: CHANGED PARTS LIST
ADDRESS
CHANGE INFORMATION
SERIAL No.
F-2
C3 3.3 50V → :NM
DELETED
10031 -
IC1 (1/3) AN3552S RF PRE AMP
TP3 (AFM SWP)
TP6 (HOLD PULSE)
TP1 (RF CH-1)
TP2 (RF CH-2)
X2
MM1
MM2
OR
F.F.
DROP OUT DETECTOR
6H HIGH
T6dB
ENVE AMP
LINEAR
TP4 (SWITCHED AFM RF OUT)
FL1 1.4MHz
BPF
TP5 (CH-1 AFM PB RF)
TP7 (CH-1 REC RF OUT)
RV1: AFM SWITCHING POSITION
RV2: AFM RF PB AMP GAIN
RF SW PULSE IN
AFM PB RF CH-1 IN
AFM PB RF CH-2 IN
H:EE/L:PB IN
Q10 2SA1175 PB +5V SW
Q8 DTA144EK REC +5V SW
Q12 2SC1623 AFM REC RF BUFFER
Q13 DTC144EK S-VHS SW
L:VHS CASSETE
L:AFM REC IN
L:AFM REC OUT
AFM REC RF OUT
AU PB 5V OUT
REG 12V OUT
REG 12V IN
REG 5.5V IN
REG 5V IN
GND (A) IN
GND OUT
GND
FL2 1.5MHz
TP10 (CH-2 AFM PB RF)
TP11 (CH-2 REC RF OUT)
RV6: AFM REC RF LEVEL
L:CH-1 MIC
L:CH-1 MIC IN
CH-1 AU LINE IN (H) IN
CH-1 AU LINE IN (G) IN
IC3 (1/2) RC5532OD MIC AMP
IC3 (2/2) RC5532OD REF VOLTAGE
IC4 M5201P CH-1 L&U SELECT AMP
CH-1 MIC (H) IN
CH-1 MIC (G) IN
CH-1 MIC (Y) IN
RV10: CH-1 AUDIO LEVEL
CH-2 AU LINE IN (H) IN
CH-2 AU LINE IN (G) IN
RV11: CH-2 AUDIO LEVEL
12V
5V


IC1 (2/3) AN3932S CH-1 MOD/DEMOD
Q14 2SC3326N CH-1 MUTE
IC2 (1/2) AN3972FC CH-1 AFM NR
IC2 (2/2) AN3972FC CH-2 AFM NR
IC1 (3/3) AN3932S CH-2 MOD/DEMOD
Q15 2SC3326N CH-1 MUTE
Q5 DTA144EK AFM MUTE SW
IC5 TC7S32F MUTE
TP5 (CH-1 AFM PB RF)
TP7 (CH-1 REC RF OUT)
TP8 (CH-1 AFM DEMOD OUT/ MOD IN)
TP9 (AFM CH-1)
TP10 (CH-2 AFM PB RF)
TP11 (CH-2 REC RF OUT)
TP12 (CH-2 AFM DEMOD OUT/ MOD IN)
TP13 (AFM CH-2)
FL1 1.4MHz
FL2 1.8MHz
BPF
RF LIMIT
PB CONT
LOOP FILTER
LPF
RF LPF
VCO
AUDIO LIMIT
HOLD
REC
AUDIO FILTER
DE EMP
NR EMP
AGC
MAIN
LINEAR
V REF
LEVEL SENSOR
OUT SEL
MUTE
HP VOL.
RF AGC
CCA
LINE
R/P CONT
SW CONT1
SW CONT2
FC
GND
SMC
RV3:1.4MHz VCO
RV4:CH-1 AFM PB LEVEL
RV5:CH-1 AFM DEV.
RV7:1.8MHz VCO
RV8:CH-2 AFM PB LEVEL
RV9:CH-2 AFM DEV.
S/N 10031 AND HIGHER
S/N 10001 TO 10031
D8 1S2837
D9 1S2837
L:AFM MUTE IN
311-10
SS (1/5), 142-2
CH-1 AFM 2/2
CH-1 1/2VCC 2/2
CH-2 AFM 2/2
CH-2 1/2VCC 2/2
CH-1 LAU 2/2
CH-2 LAU 2/2
E1
E2
E3
5V
12V
④
⑤
⑥
⑦
⑧
1
2
3
4
5

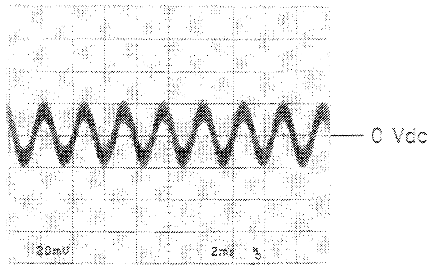
AU-161A (1/2)

1-641-588-12, 13 (1)
SVO-9500MDP

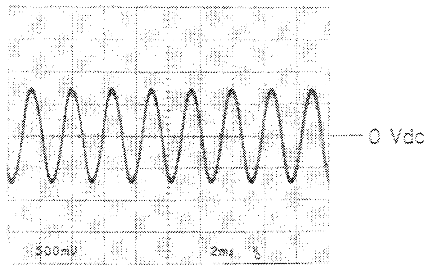
AU-161A (2/2)

13-36

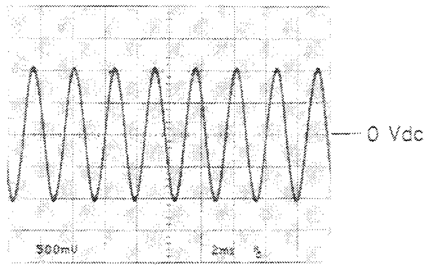
① TP203 (J-3) PB mode



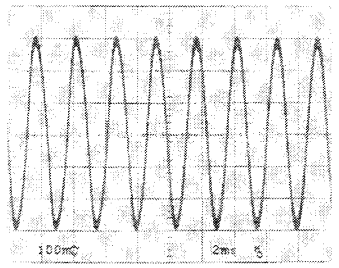
② TP204 (I-2) PB mode



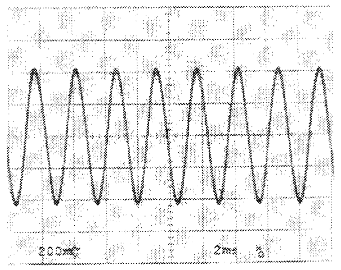
TP204 (I-2) STOP (E-E) mode



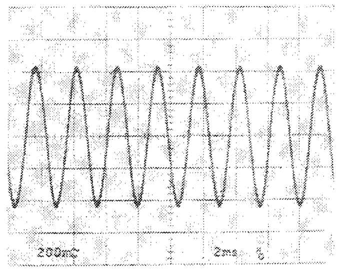
③ TP205 (J-1) PB mode



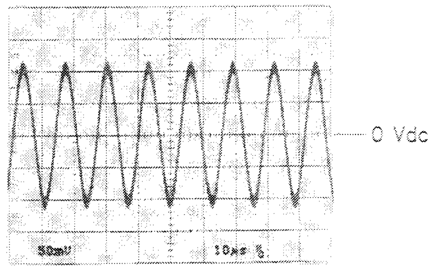
TP205 (J-1) STOP (E-E) mode



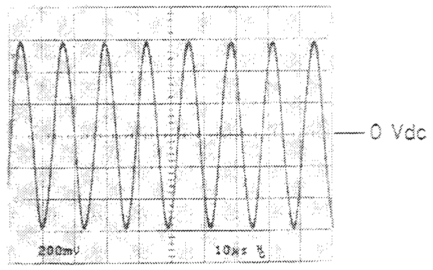
④ TP206 (J-2) STOP (E-E) mode



⑤ TP402 (L-4) REC mode

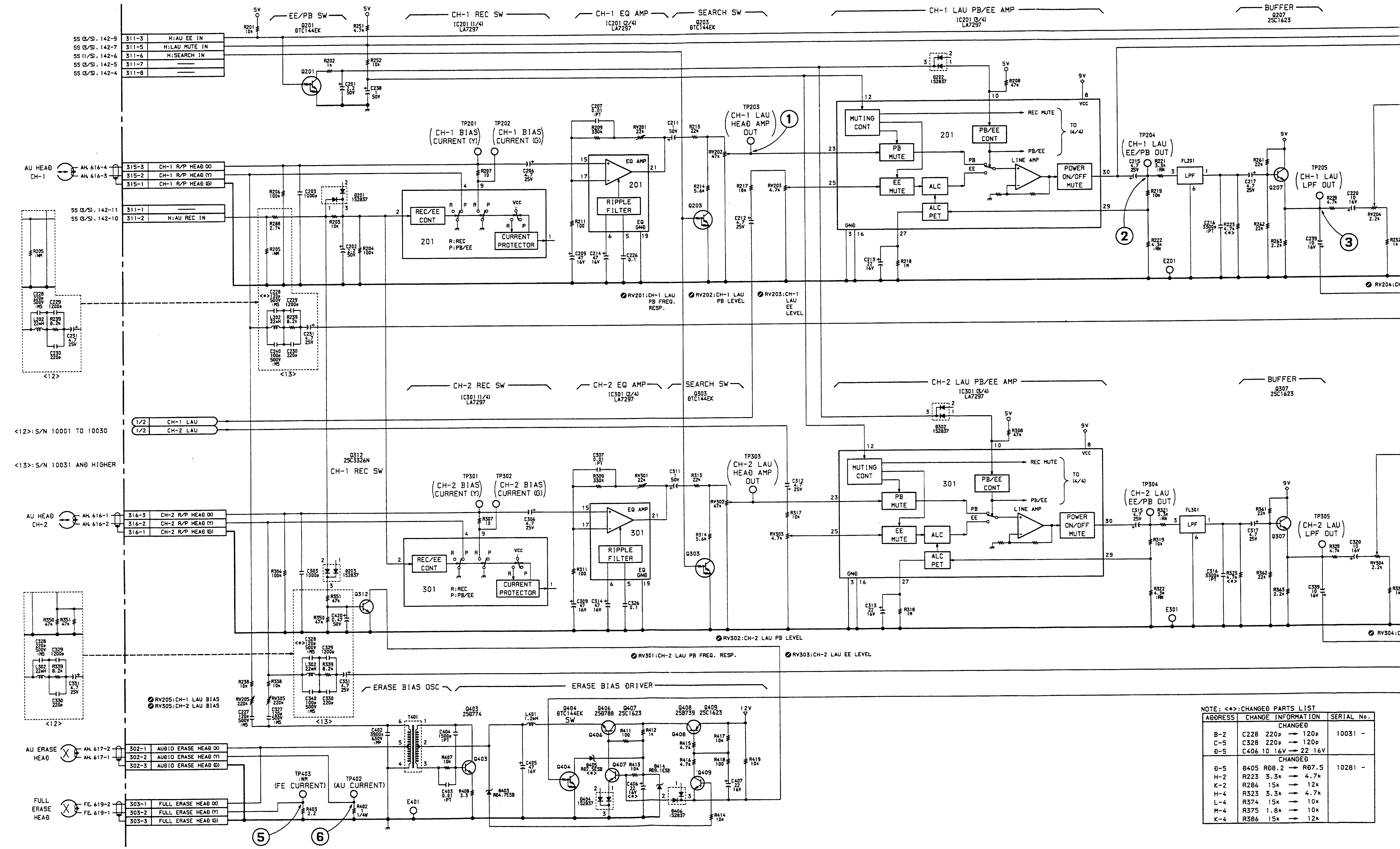


⑥ TP403 (L-4) REC mode



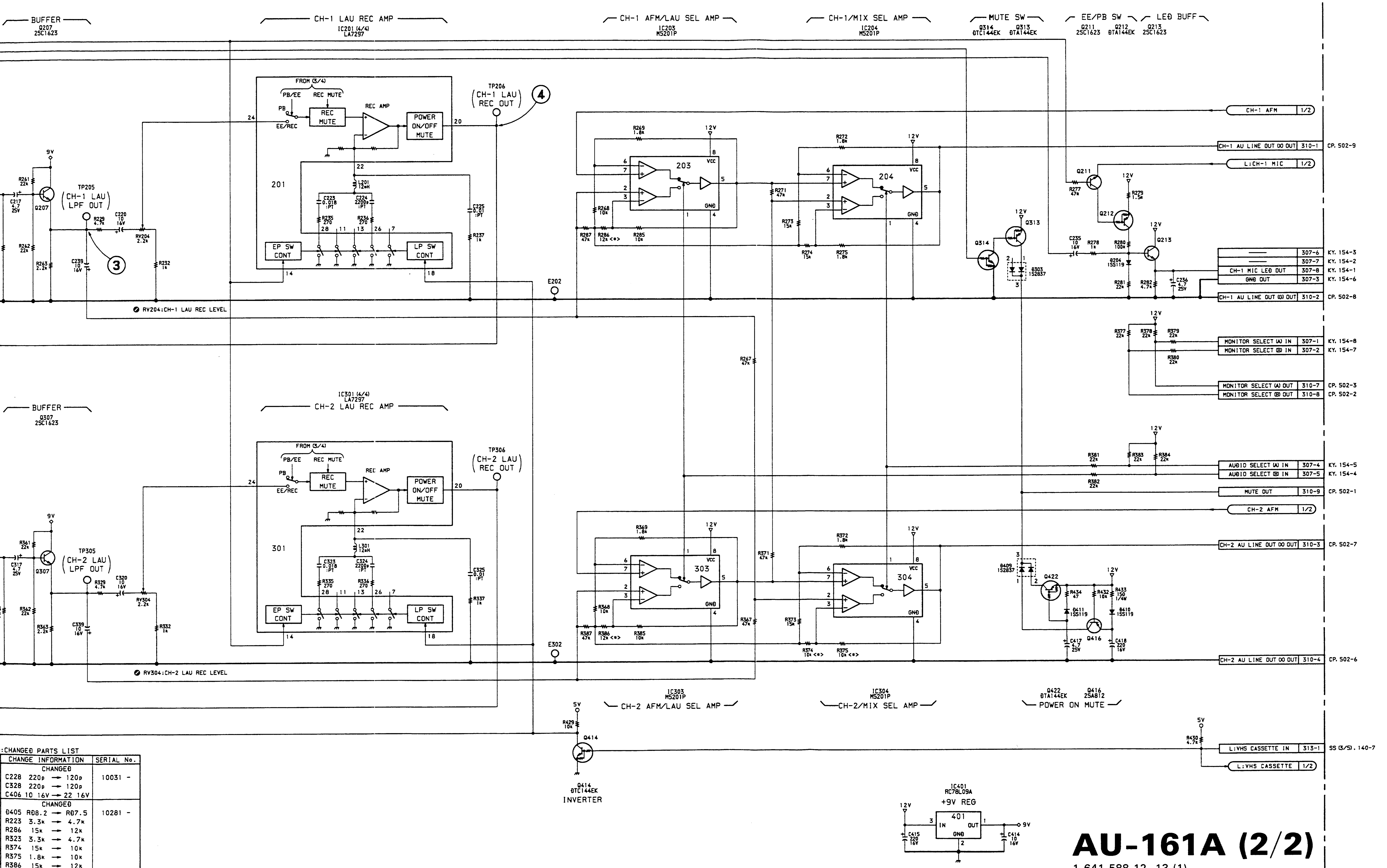
Measurement Condition
CH-1, AUDIO IN: 400 Hz, −10 dBu
STOP (E-E) mode: N-VHS
REC mode: N-VHS
PB mode: KRV-45PS

AU-161A (2/2); NORMAL AUDIO PROCESS


EE/PB SW
Q201 DTC144EK
CH-1 REC SW
IC201 (1/4) LA7297
CH-1 EQ AMP
IC201 (2/4) LA7297
SEARCH SW
Q203 DTC144EK
CH-1 LAU PB/EE AMP
IC201 (3/4) LA7297
BUFFER
Q207 2SC1623
H:AU EE IN
H:LAU MUTE IN
H:SEARCH IN
AU HEAD CH-1
CH-1 R/P HEAD (X)
CH-1 R/P HEAD (Y)
CH-1 R/P HEAD (G)
H:AU REC IN
TP201 (CH-1 BIAS CURRENT (Y))
TP202 (CH-1 BIAS CURRENT (G))
TP203 (CH-1 LAU HEAD AMP OUT)
TP204 (CH-1 LAU EE/PB OUT)
TP205 (CH-1 LAU LPF OUT)
REC/EE CONT
CURRENT PROTECTOR
R:REC P:PB/EE
EQ AMP
RIPPLE FILTER
MUTING CONT
PB MUTE
EE MUTE
ALC
ALC DET
PB/EE CONT
LINE AMP
POWER ON/OFF MUTE
REC MUTE
PB/EE
TO (4/4)
LPF
FL201
①
②
③
RV201:CH-1 LAU PB FREQ. RESP.
RV202:CH-1 LAU PB LEVEL
RV203:CH-1 LAU EE LEVEL
RV204
<12>
<13>
CH-2 REC SW
IC301 (1/4) LA7297
CH-2 EQ AMP
IC301 (2/4) LA7297
SEARCH SW
Q303 DTC144EK
CH-2 LAU PB/EE AMP
IC301 (3/4) LA7297
BUFFER
Q307 2SC1623
CH-1 LAU
CH-2 LAU
<12>:S/N 10001 TO 10030
<13>:S/N 10031 AND HIGHER
Q312 2SC3326N
CH-1 REC SW
AU HEAD CH-2
CH-2 R/P HEAD (X)
CH-2 R/P HEAD (Y)
CH-2 R/P HEAD (G)
TP301 (CH-2 BIAS CURRENT (Y))
TP302 (CH-2 BIAS CURRENT (G))
TP303 (CH-2 LAU HEAD AMP OUT)
TP304 (CH-2 LAU EE/PB OUT)
TP305 (CH-2 LAU LPF OUT)
RV302:CH-2 LAU PB LEVEL
RV301:CH-2 LAU PB FREQ. RESP.
RV303:CH-2 LAU EE LEVEL
RV304
RV205:CH-1 LAU BIAS
RV305:CH-2 LAU BIAS
ERASE BIAS OSC
ERASE BIAS DRIVER
Q403 2SD774
Q404 DTC144EK SW
Q406 2SD788
Q407 2SC1623
Q408 2SB739
Q409 2SC1623
T401
L401 1.2mH
AU ERASE HEAD
AUDIO ERASE HEAD (X)
AUDIO ERASE HEAD (Y)
AUDIO ERASE HEAD (G)
FULL ERASE HEAD
FULL ERASE HEAD (X)
FULL ERASE HEAD (Y)
FULL ERASE HEAD (G)
TP403 :NM (FE CURRENT)
TP402 (AU CURRENT)
E401
12V
⑤
⑥

NOTE: <*>:CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
B-2	C228 220p → 120p	10031 -
C-5	C328 220p → 120p	
D-5	C406 10 16V → 22 16V	
	CHANGED	
D-5	D405 RD8.2 → RD7.5	10281 -
H-2	R223 3.3k → 4.7k	
K-2	R286 15k → 12k	
H-4	R323 3.3k → 4.7k	
L-4	R374 15k → 10k	
M-4	R375 1.8k → 10k	
K-4	R386 15k → 12k	


BUFFER
Q207
2SC1623
CH-1 LAU REC AMP
IC201 (4/4)
LA7297
CH-1 AFM/LAU SEL AMP
IC203
M5201P
CH-1/MIX SEL AMP
IC204
M5201P
MUTE SW
Q314 DTC144EK
Q313 DTA144EK
EE/PB SW
Q211 2SC1623
Q212 DTA144EK
LED BUFF
Q213 2SC1623
FROM (3/4)
PB/EE
REC MUTE
REC AMP
POWER ON/OFF MUTE
TP206
CH-1 LAU REC OUT
TP205
CH-1 LAU LPF OUT
EP SW CONT
LP SW CONT
RV204:CH-1 LAU REC LEVEL
E202
CH-1 AFM 1/2
CH-1 AU LINE OUT (X) OUT 310-1 CP. 502-9
L:CH-1 MIC 1/2
307-6 KY. 154-3
307-7 KY. 154-2
CH-1 MIC LED OUT 307-8 KY. 154-1
GND OUT 307-3 KY. 154-6
CH-1 AU LINE OUT (G) OUT 310-2 CP. 502-8
MONITOR SELECT (A) IN 307-1 KY. 154-8
MONITOR SELECT (B) IN 307-2 KY. 154-7
MONITOR SELECT (A) OUT 310-7 CP. 502-3
MONITOR SELECT (B) OUT 310-8 CP. 502-2
AUDIO SELECT (A) IN 307-4 KY. 154-5
AUDIO SELECT (B) IN 307-5 KY. 154-4
MUTE OUT 310-9 CP. 502-1
CH-2 AFM 1/2
CH-2 AU LINE OUT (X) OUT 310-3 CP. 502-7
CH-2 AU LINE OUT (X) OUT 310-4 CP. 502-6
L:VHS CASSETTE IN 313-1 SS (3/5). 140-7
L:VHS CASSETTE 1/2
BUFFER
Q307
2SC1623
IC301 (4/4)
LA7297
CH-2 LAU REC AMP
TP306
CH-2 LAU REC OUT
TP305
CH-2 LAU LPF OUT
RV304:CH-2 LAU REC LEVEL
E302
IC303
M5201P
CH-2 AFM/LAU SEL AMP
IC304
M5201P
CH-2/MIX SEL AMP
Q422 DTA144EK
Q416 2SA812
POWER ON MUTE
Q414
DTC144EK
INVERTER
IC401
RC78L09A
+9V REG
401
IN OUT GND
12V
9V
5V
201
301
203
204
303
304
③
④
1
2
3
4
5

:CHANGED PARTS LIST

CHANGE INFORMATION	SERIAL No.
CHANGED C228 220p → 120p C328 220p → 120p C406 10 16V → 22 16V	10031 -
CHANGED D405 RD8.2 → RD7.5 R223 3.3k → 4.7k R286 15k → 12k R323 3.3k → 4.7k R374 15k → 10k R375 1.8k → 10k R386 15k → 12k	10281 -

AU-161A (2/2)

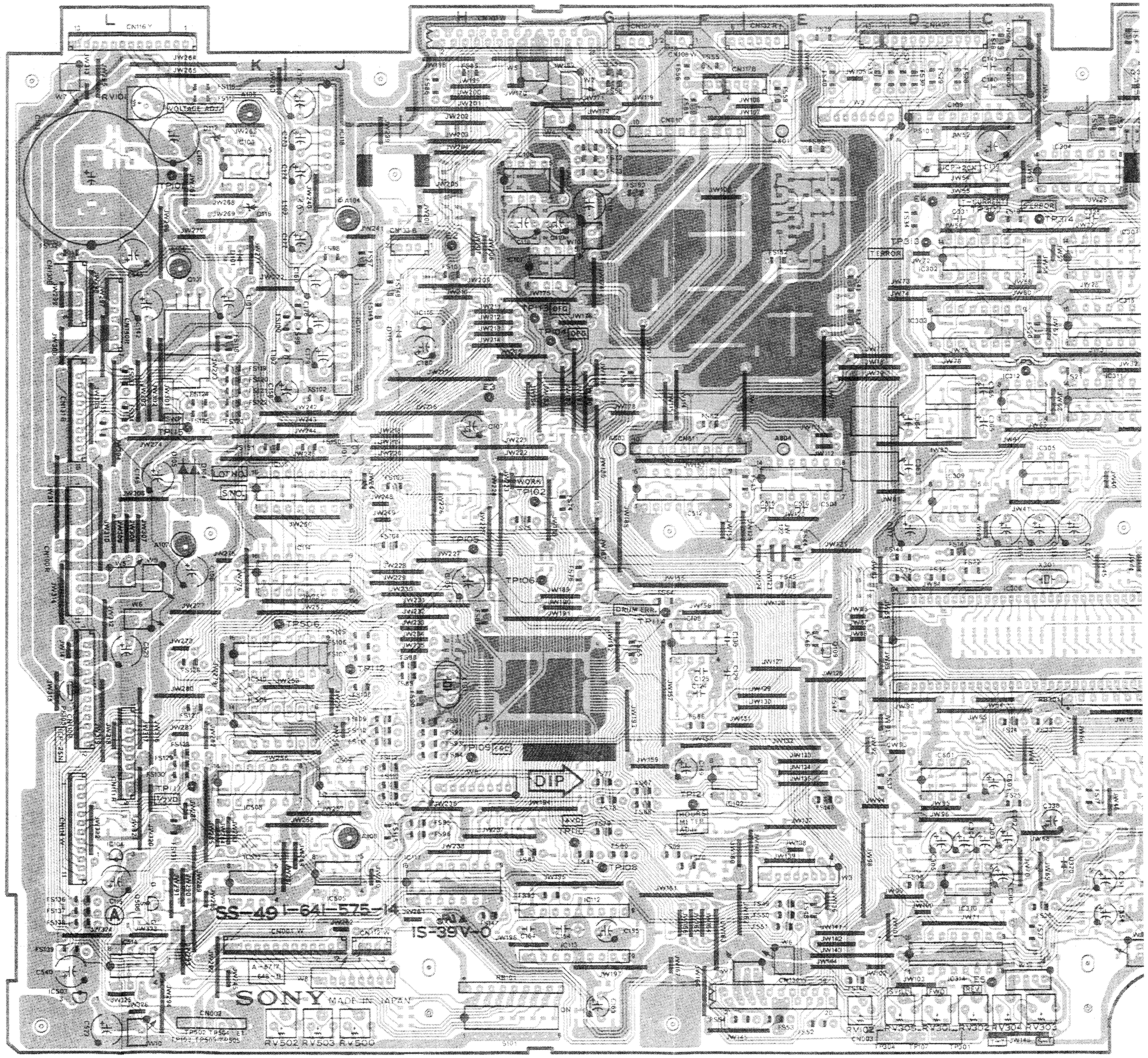
1-641-588-12, 13 (1)
SVO-9500MDP

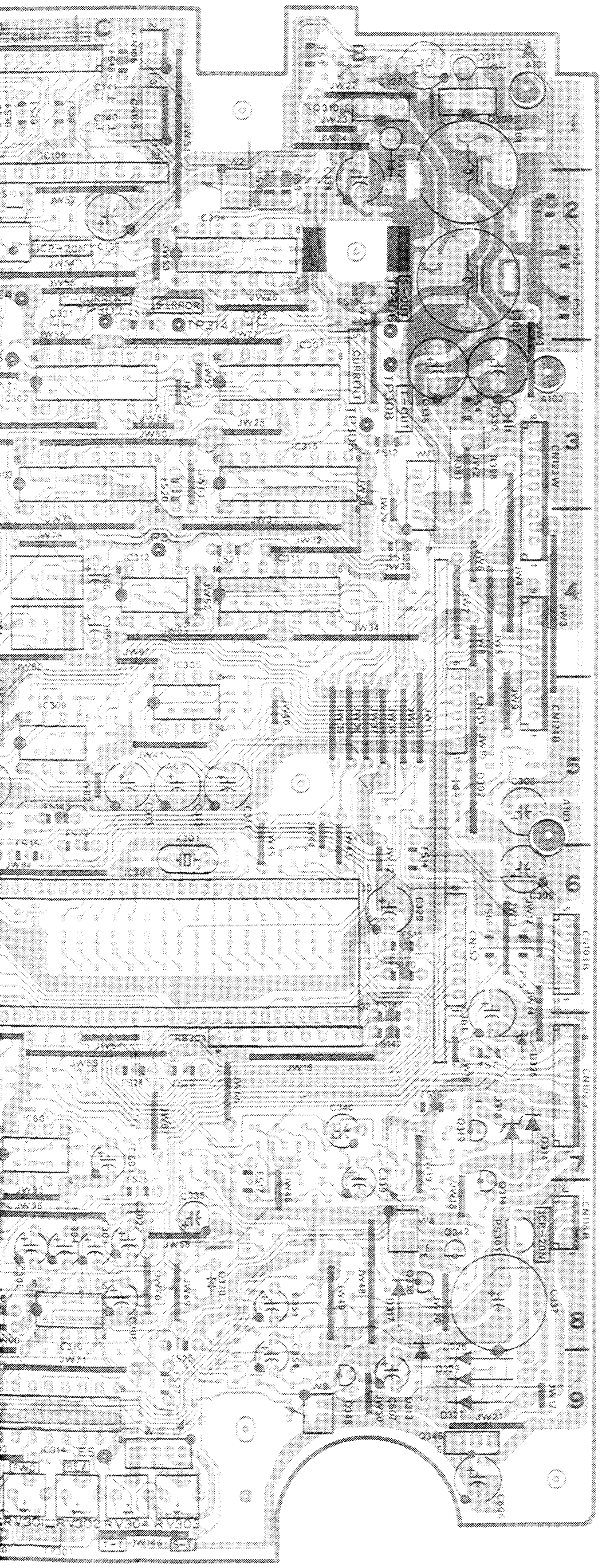
SS-49A ; SERVO & SYSTEM CONTROL

SS-49A (1-641-575-14)

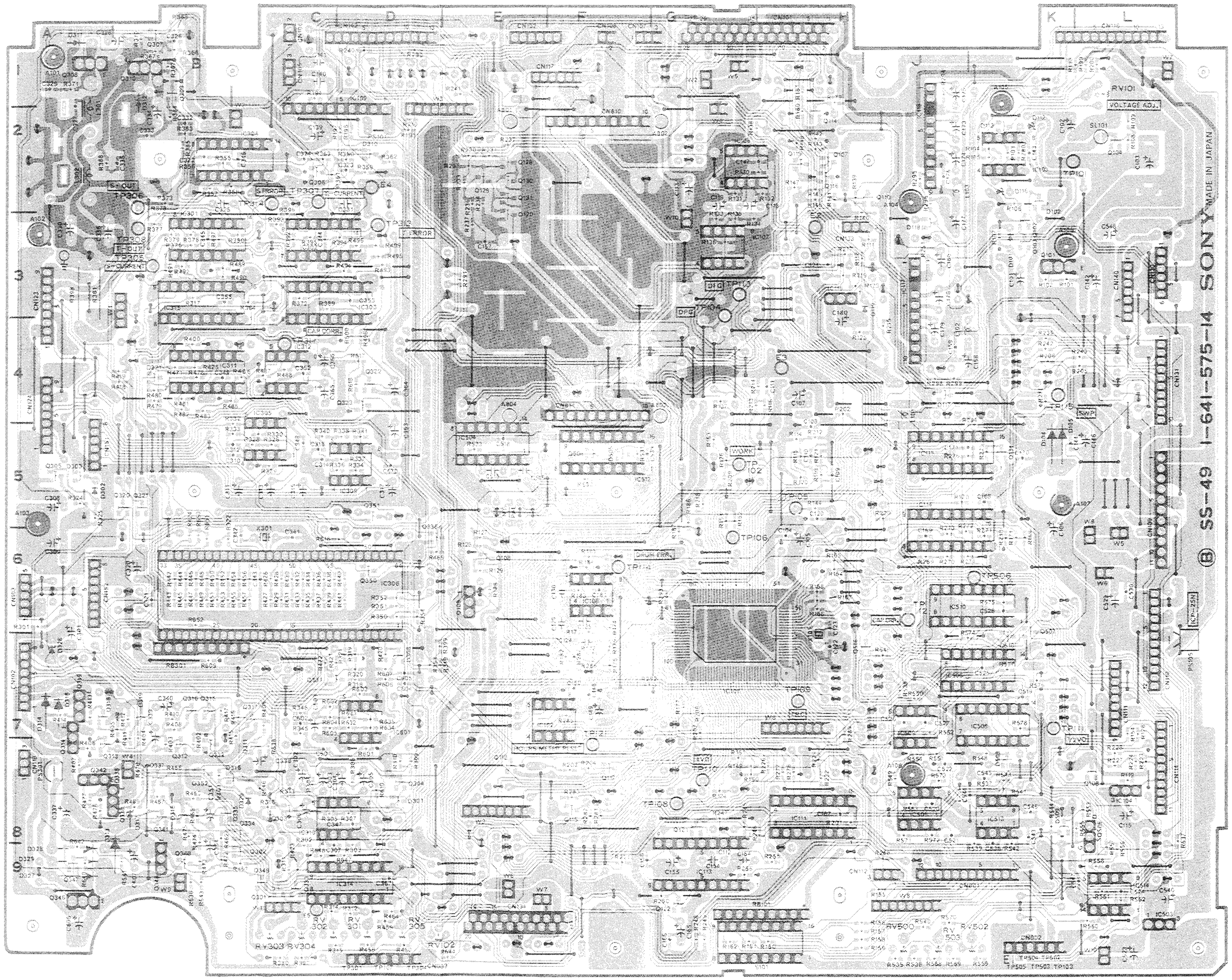
Ref.	Location
CN100	L-5
CN101	H-1
CN102	A-7
CN103	A-6
CN105	C-1
CN106	C-1
CN107	F-1
CN108	F-1
CN110	L-7
CN111	L-7
CN114	L-8
CN116	L-1
CN117	F-1
CN118	A-8
CN123	A-3
CN124	A-5
CN130	L-3
CN131	L-4
CN132	E-1
CN133	J-3
CN134	E-9
CN140	L-3
CN142	D-1
CN151	A-5
CN152	A-6
CN810	F-2
CN811	F-4
D101	K-3
D102	K-2 *
D104	K-5
D105	K-4
D108	L-8 *
D112	K-2
D113	K-2 *
D116	K-2
D119	J-3
D301	D-8 *
D302	A-5
D303	A-5 *
D308	D-7 *
D310	D-2 *
D311	A-1
D312	B-1
D313	A-9
D314	A-7
D315	B-8 *
D316	B-8 *
D317	D-8
D318	A-7
D319	B-7 *
D320	C-8
D321	B-4 *
D326	A-7
D327	A-9
D328	A-9
D329	A-9
D505	F-5 *
D506	F-5 *
D508	K-8 *
D509	K-8 *
E1	K-9
E2	H-3
E3	H-4
E5	C-9
IC101	G-7 *
IC102	F-8
IC103	K-2
IC104	L-8
IC106	G-2
IC107	G-3
IC108	F-6
IC109	D-1
IC111	H-8
IC112	G-8
IC114	J-5
IC115	K-5
IC116	H-3
IC301	B-3
IC302	D-3
IC303	D-3
IC304	C-2
IC305	C-4
IC306	C-6
IC310	D-8
IC311	B-4
IC312	C-4
IC314	D-9
IC315	B-3
IC503	L-9
IC504	E-5
IC505	J-8
IC506	K-7
IC508	K-8
IC509	J-7
IC510	K-6
IC512	F-5
IC513	K-8
IC514	L-9
IC601	D-7
PS101	D-2
PS105	L-7 *
PS301	A-1
Q101	K-3
Q102	K-3 *
Q103	K-3 *
Q104	L-2 *
Q107	H-2 *
Q108	E-6 *
Q109	E-6
Q110	J-2 *
Q114	H-2 *
Q115	F-8 *
Q116	H-2 *
Q117	F-8 *
Q118	E-8 *
Q119	H-2 *
Q120	E-2 *
Q121	G-8 *
Q128	E-2 *
Q129	E-2 *
Q130	E-2 *
Q131	E-2 *
Q134	K-5 *
Q301	C-9 *
Q302	C-9 *
Q303	C-8 *
Q304	D-8 *
Q305	A-5 *
Q306	C-2 *
Q307	B-1 *
Q308	A-1
Q309	B-1 *
Q310	B-1
Q311	C-8 *
Q312	B-8 *
Q313	A-8 *
Q314	A-8
Q315	B-7 *
Q316	B-7 *
Q317	C-7 *
Q318	A-7 *
Q319	A-7
Q320	A-5 *
Q321	B-5 *
Q322	D-4 *
Q323	D-4 *
Q331	C-7 *
Q332	B-8 *
Q333	C-9 *
Q334	C-8 *
Q335	C-8 *
Q336	D-6 *
Q337	B-8 *
Q338	A-8
Q340	B-9 *
Q341	B-8 *
Q342	A-8
Q346	A-9
Q347	A-9 *
Q348	B-9
Q349	C-9 *
Q350	D-6 *
Q351	D-5 *
Q506	L-8
Q507	K-6 *
Q510	K-7 *
Q516	H-7 *
RB101	H-9
RB301	C-7
RV101	L-1
RV102	E-9
RV301	D-9
RV302	D-9
RV303	C-9
RV304	C-9
RV305	D-9
RV500	J-9
RV502	K-9
RV503	J-9
S101	H-9
TP101	K-2
TP102	G-5
TP103	K-9
TP104	G-3
TP105	H-5
TP106	G-6
TP107	D-9
TP108	G-8
TP109	H-7
TP110	G-8
TP111	L-7
TP112	J-6
TP113	G-3
TP114	F-6
TP115	K-4
TP121	F-7
TP301	D-9
TP304	D-9
TP305	B-3
TP306	B-2
TP307	C-2
TP308	B-3
TP311	C-4
TP313	D-3
TP314	C-2
TP502	K-9
TP503	K-9
TP504	K-9
TP505	K-9
TP506	J-6
X101	H-6
X301	C-5

* mark : B SIDE mount





SS-49/A — A SIDE —
1-641-575-14 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


SONY
MADE IN JAPAN
SS-49 1-641-575-14
VOLTAGE ADJ.
RV101

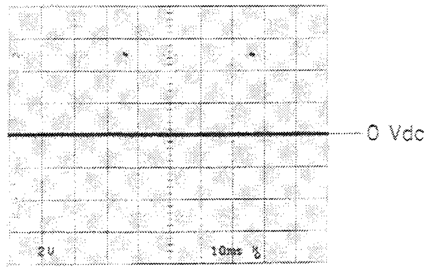
SS-49/A — B SIDE —
1-641-575-14 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

SS-49A (1/5); DRUM/CAPSTAN SERVO CONTROL VIDEO/AUDIO CONTROL SIGNAL GENERATOR

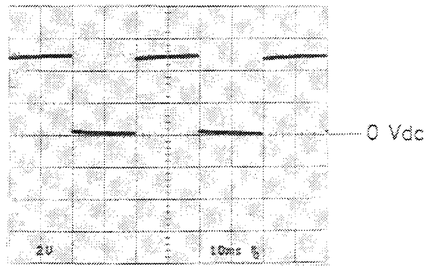
LD-35; LOADING MOTOR

CM-14; CASSETTE COMPARTMENT MOTOR

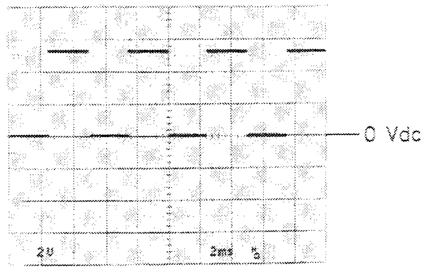
① TP104 (G-3) PB mode



⑤ TP115 (K-4) PB mode

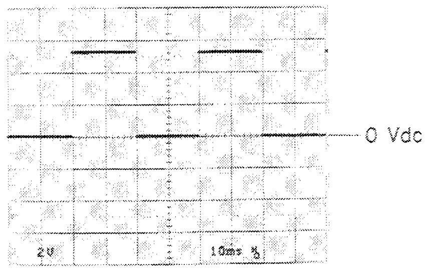


② TP110 (G-8) PB mode

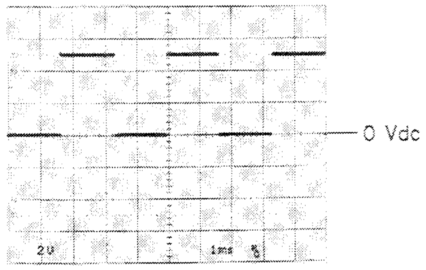


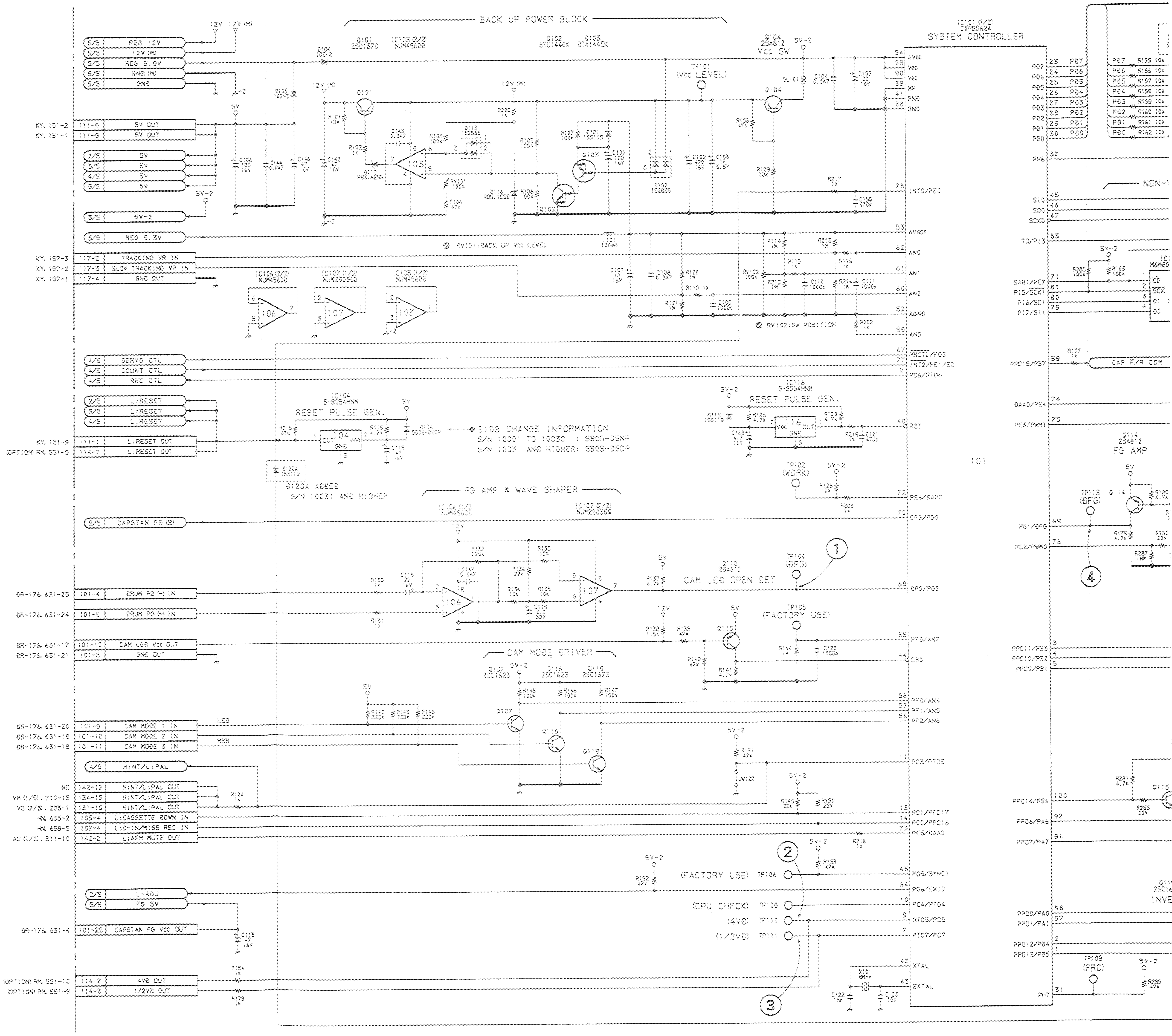
Measurement Condition
PB mode: KRV-45HPS

③ TP111 (L-7) PB mode

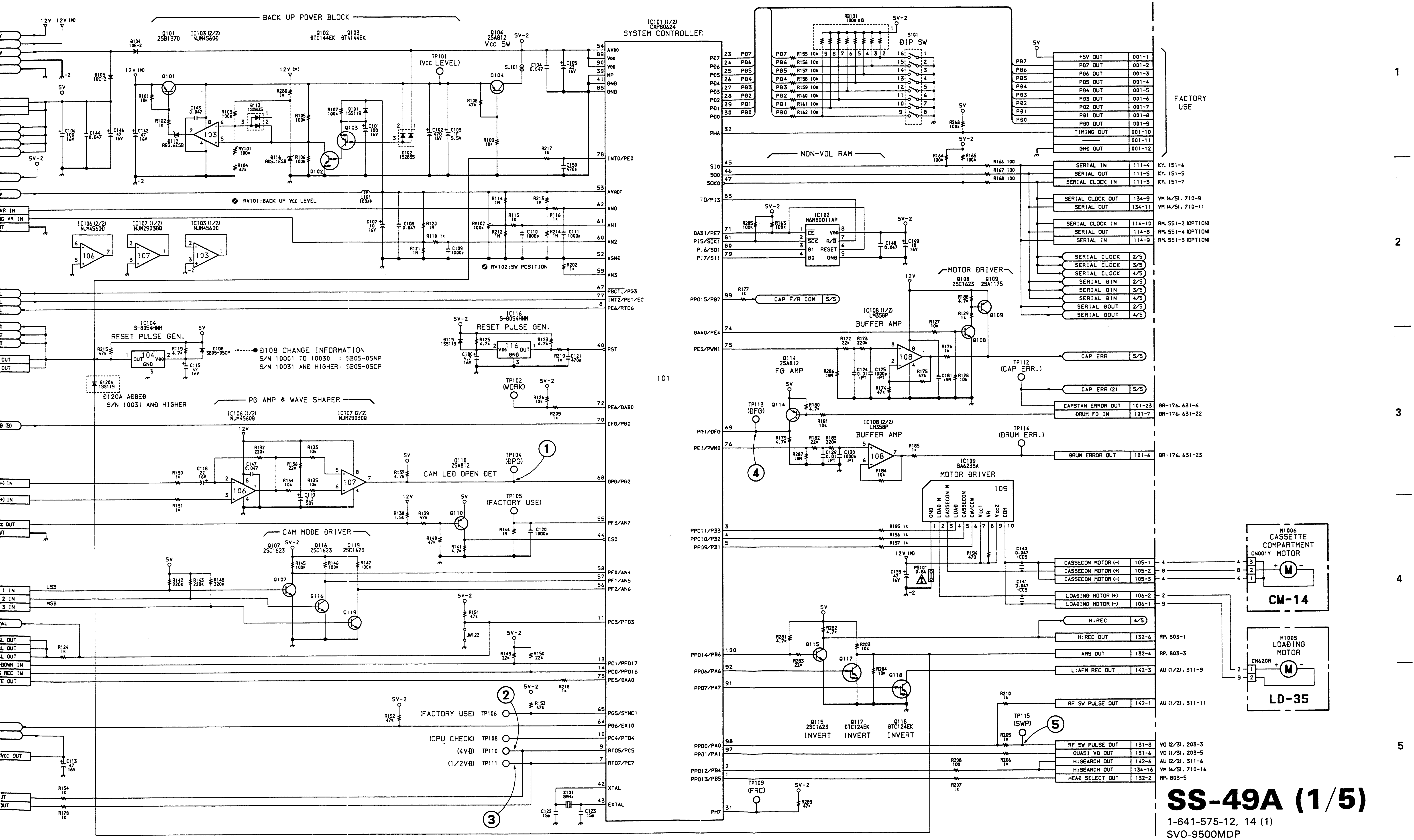


④ TP113 (G-3) PB mode




BACK UP POWER BLOCK
IC101 (1/2) CXP80624
SYSTEM CONTROLLER
TP101 (Vcc LEVEL)
RV101: BACK UP Vcc LEVEL
RV102: SW POSITION
IC104 S-8054HNM
RESET PULSE GEN.
IC116 S-8054HNM
RESET PULSE GEN.
D108 CHANGE INFORMATION
S/N 10001 TO 10030 : S805-05NF
S/N 10031 AND HIGHER: S805-05CP
D120A ADDED
S/N 10031 AND HIGHER
FG AMP & WAVE SHAPER
CAM LED OPEN DET
TP104 (DFG)
TP125 (FACTORY USE)
TP102 (WORK)
CAM MODE DRIVER
Q114 2SA812 FG AMP
TP113 (DFG)
CAP F/R COM
NON-
(FACTORY USE) TP106
(CPU CHECK) TP108
(4VD) TP110
(1/2VD) TP111
TP109 (FRC)
X101 8MHz
INVE
REG 12V
12V (M)
REG 5.9V
GND (M)
GND
5V OUT
5V
5V-2
REG 5.3V
TRACKING VR IN
SLOW TRACKING VR IN
GND OUT
SERVO CTL
COUNT CTL
REC CTL
L:RESET
L:RESET OUT
CAPSTAN FG (B)
DRUM FG (+) IN
DRUM FG (-) IN
CAM LED Vcc OUT
CAM MODE 1 IN
CAM MODE 2 IN
CAM MODE 3 IN
H:NT/L:PAL
H:NT/L:PAL OUT
L:CASSETTE DOWN IN
L:C-IN/MISS REC IN
L:AFM MUTE OUT
L-ADJ
FG 5V
CAPSTAN FG Vcc OUT
4VD OUT
1/2VD OUT
LSB
MSB

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

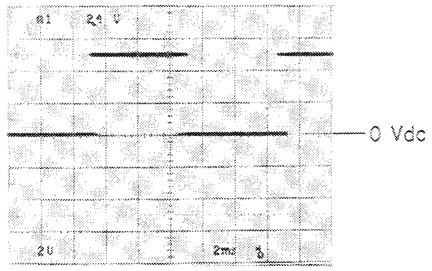

BACK UP POWER BLOCK
IC101 (1/2)
CXP80624
SYSTEM CONTROLLER
Q101 2SB1370
IC103 (2/2) NJM4560D
Q102 DTC144EK
Q103 DTA144EK
Q104 2SA812 Vcc SW
TP101 (Vcc LEVEL)
RV101:BACK UP Vcc LEVEL
RV102:SW POSITION
IC106 (2/2) NJM4560D
IC107 (1/2) NJM2903DD
IC103 (1/2) NJM4560D
IC104 S-8054HNM RESET PULSE GEN.
IC116 S-8054HNM RESET PULSE GEN.
D108 CHANGE INFORMATION
S/N 10001 TO 10030 : SB05-05NP
S/N 10031 AND HIGHER: SB05-05CP
D120A ADDED
S/N 10031 AND HIGHER
TP102 (WORK)
PG AMP & WAVE SHAPER
IC106 (1/2) NJM4560D
IC107 (2/2) NJM2903DD
Q110 2SA812
CAM LED OPEN DET
TP104 (DPG)
TP105 (FACTORY USE)
CAM MODE DRIVER
Q107 2SC1623
Q116 2SC1623
Q119 2SC1623
LSB
MSB
(FACTORY USE) TP106
(CPU CHECK) TP108
(4VD) TP110
(1/2VD) TP111
X101 8MHz
101
AVDD VDD VDD MP GND GND
INTO/PEO AVREF AN0 AN1 AN2 AGND AN3
PBCTL/PG3 INT2/PE1/EC PC6/RTO6 RST PE6/DAB0 CFG/PG0 DPG/PG2 PF3/AN7 CSO PF0/AN4 PF1/AN5 PF2/AN6 PC3/PTO3 PC1/PFO17 PC0/PPO16 PES/DAA0 PO5/SYNC1 PG6/EX10 PC4/PTO4 RTO5/PC5 RTO7/PC7 XTAL EXTAL
PD7 PD6 PD5 PD4 PD3 PD2 PD1 PD0 PH6 SI0 SO0 SCK0 TO/P13 DAB1/PE7 PI5/SCK1 PI6/SO1 PI7/SI1 PPO15/PB7 DAA0/PE4 PE3/PWM1 PG1/DFG PE2/PWM0 PPO11/PB3 PPO10/PB2 PPO9/PB1 PPO14/PB6 PPO6/PA6 PPO7/PA7 PPO0/PA0 PPO1/PA1 PPO12/PB4 PPO13/PB5 PH7
RB101 100k×8
S101 DIP SW
NON-VOL RAM
IC102 M6M80011AP
CE VDD SCK R/B DI RESET DO GND
MOTOR DRIVER
Q108 2SC1623
Q109 2SA1175
CAP F/R COM 5/5
IC108 (1/2) LM358P BUFFER AMP
Q114 2SA812 FG AMP
TP112 (CAP ERR.)
TP113 (DFG)
IC108 (2/2) LM358P BUFFER AMP
TP114 (DRUM ERR.)
IC109 BA6238A MOTOR DRIVER
GND LOAD M CASSECON M LOAD CASSECON CW/CCW Vcc1 VR Vcc2 COM
PS101 0.8A
Q115 2SC1623 INVERT
Q117 DTC124EK INVERT
Q118 DTC124EK INVERT
TP109 (FRC)
TP115 (SWP)
+5V OUT 001-1
PD7 OUT 001-2
PD6 OUT 001-3
PD5 OUT 001-4
PD4 OUT 001-5
PD3 OUT 001-6
PD2 OUT 001-7
PD1 OUT 001-8
PD0 OUT 001-9
TIMING OUT 001-10
001-11
GND OUT 001-12
FACTORY USE
SERIAL IN 111-4 KY. 151-6
SERIAL OUT 111-5 KY. 151-5
SERIAL CLOCK IN 111-3 KY. 151-7
SERIAL CLOCK OUT 134-9 VM (4/5). 710-9
SERIAL OUT 134-11 VM (4/5). 710-11
SERIAL CLOCK IN 114-10 RM. 551-2 (OPTION)
SERIAL OUT 114-8 RM. 551-4 (OPTION)
SERIAL IN 114-9 RM. 551-3 (OPTION)
SERIAL CLOCK 2/5
SERIAL CLOCK 3/5
SERIAL CLOCK 4/5
SERIAL DIN 2/5
SERIAL DIN 3/5
SERIAL DIN 4/5
SERIAL DOUT 2/5
SERIAL DOUT 4/5
CAP ERR 5/5
CAP ERR (2) 5/5
CAPSTAN ERROR OUT 101-23 DR-176. 631-6
DRUM FG IN 101-7 DR-176. 631-22
DRUM ERROR OUT 101-6 DR-176. 631-23
CASSECON MOTOR (-) 105-1
CASSECON MOTOR (+) 105-2
CASSECON MOTOR (-) 105-3
LOADING MOTOR (+) 106-2
LOADING MOTOR (-) 106-1
H:REC 4/5
H:REC OUT 132-6 RP. 803-1
AMS OUT 132-4 RP. 803-3
L:AFM REC OUT 142-3 AU (1/2). 311-9
RF SW PULSE OUT 142-1 AU (1/2). 311-11
RF SW PULSE OUT 131-8 VD (2/3). 203-3
QUASI VD OUT 131-6 VD (1/3). 203-5
H:SEARCH OUT 142-6 AU (2/2). 311-6
H:SEARCH OUT 134-16 VM (4/5). 710-16
HEAD SELECT OUT 132-2 RP. 803-5
M1006 CASSETTE COMPARTMENT MOTOR
CN001Y
CM-14
M1005 LOADING MOTOR
CN620R
LD-35
①
②
③
④
⑤
1
2
3
4
5
D
E
F
G
H
I
J
K

SS-49A (1/5)

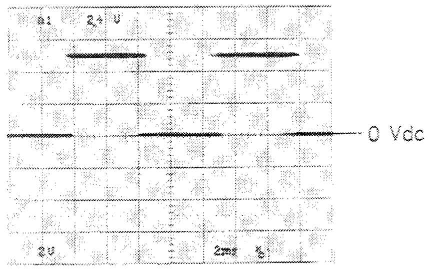
1-641-575-12, 14 (1)
SVO-9500MDP

SS-49A (2/5), DUS-445

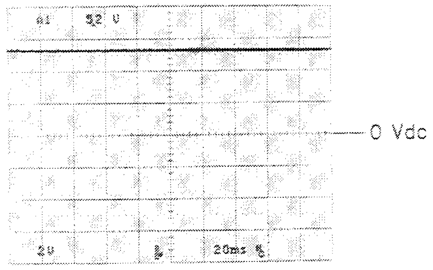
① CN151 pin 4 (A-5) PB mode



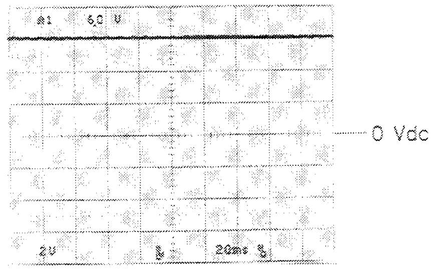
② CN151 pin 5 (A-5) PB mode



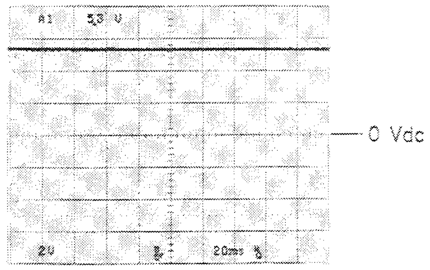
③ TP314 (C-2) PB mode



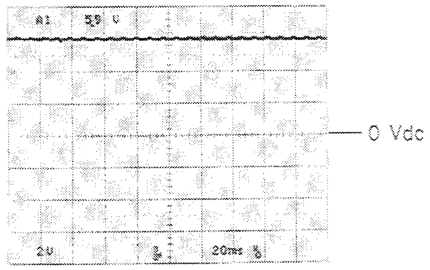
④ TP313 (D-3) PB mode



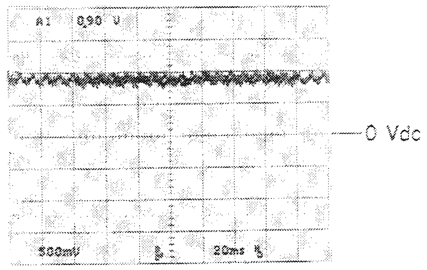
⑤ TP305 (B-3) PB mode



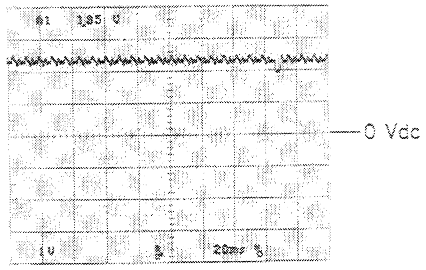
⑥ TP307 (C-2) PB mode



⑦ TP306 (B-2) PB mode



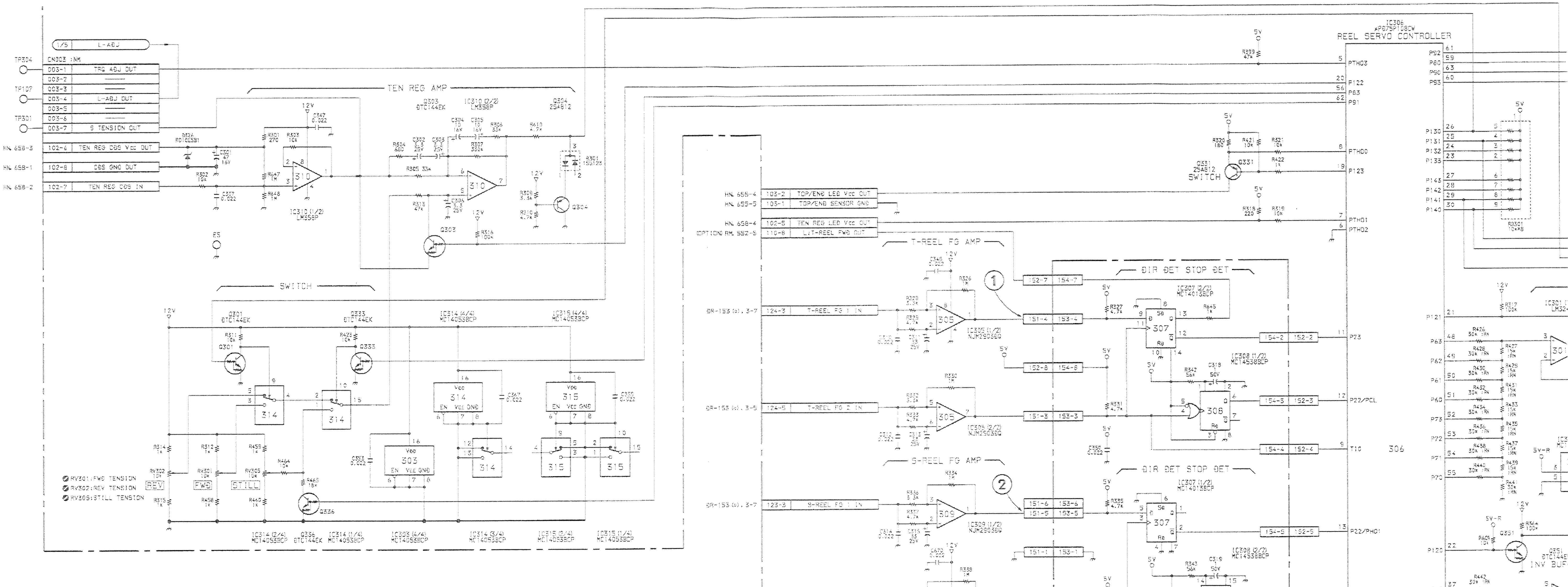
⑧ TP308 (B-3) PB mode

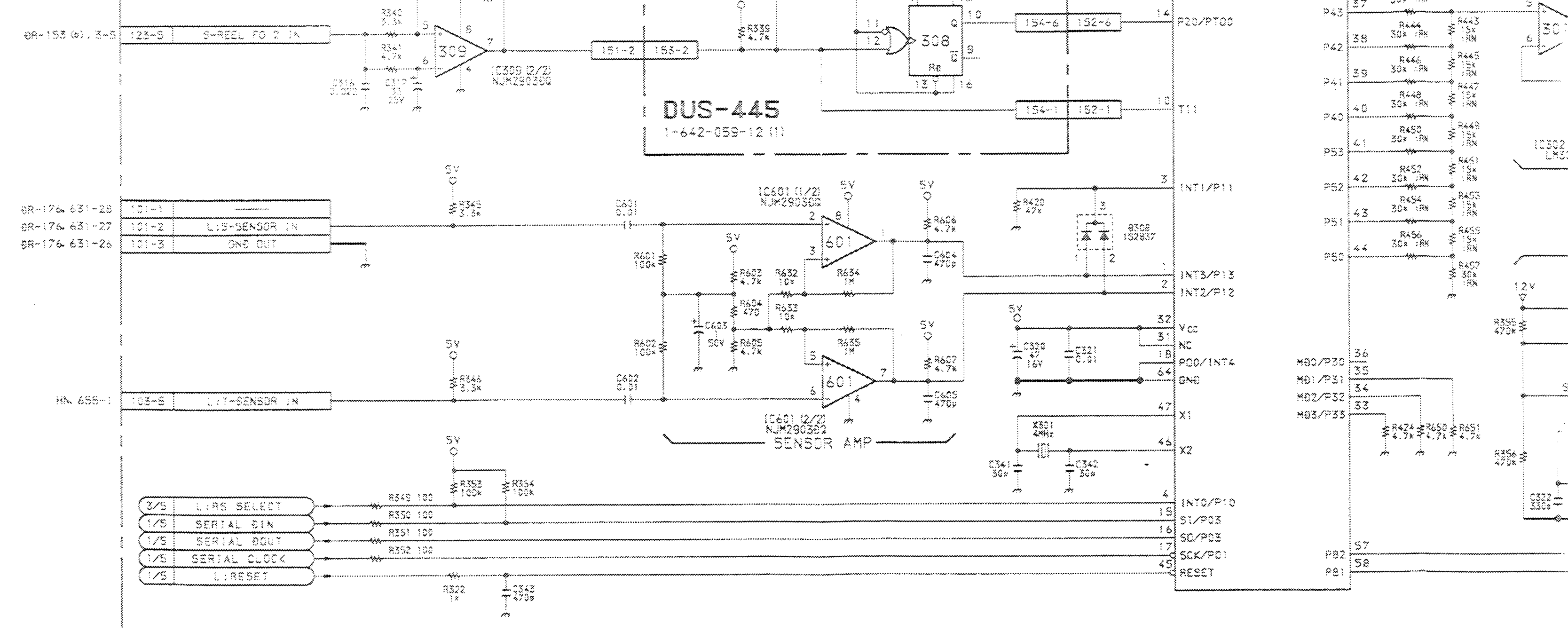


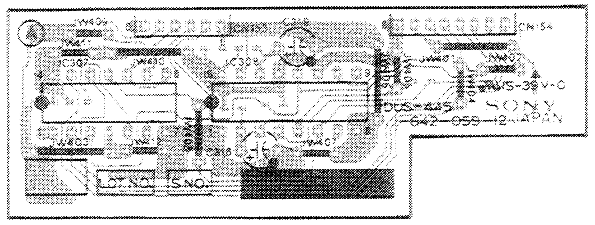
Measurement Condition
PB mode: KRV-45HPS

13-40

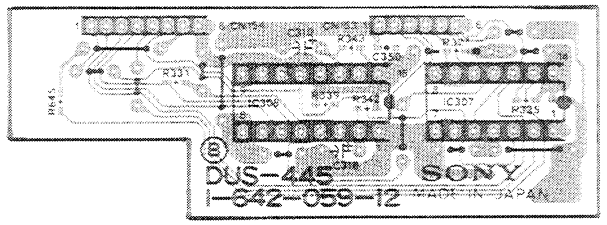
SS-49A (2/5) ; REEL SERVO CONTROL
DUS-445


TEN REG AMP
SWITCH
T-REEL FG AMP
S-REEL FG AMP
DIR DET STOP DET
IC306 REEL SERVO CONTROLLER
Q331 SWITCH
RV301:FWD TENSION
RV302:REV TENSION
RV303:STILL TENSION
TRQ ADJ OUT
L-ADJ OUT
S TENSION OUT
TEN REG DDS Vcc OUT
DDS GND OUT
TEN REG DDS IN
TOP/END LED Vcc OUT
TOP/END SENSOR GND
TEN REG LED Vcc OUT
L/T-REEL FWD OUT
T-REEL FG 1 IN
T-REEL FG 2 IN
S-REEL FG 1 IN
S-REEL FG 2 IN
INV BUF
①
②


DUS-445
1-642-059-12 (1)
L/S-SENSOR IN
GND OUT
L/T-SENSOR IN
SENSOR AMP
L/RS SELECT
SERIAL DIN
SERIAL DOUT
SERIAL CLOCK
L/RESET
INT0/P10
SI/P03
SO/P02
SCK/P01
RESET


A
DUS-445
1-642-059-12
SONY
JAPAN
LOT NO.
S.NO.

DUS-445 — A SIDE —
1-642-059-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

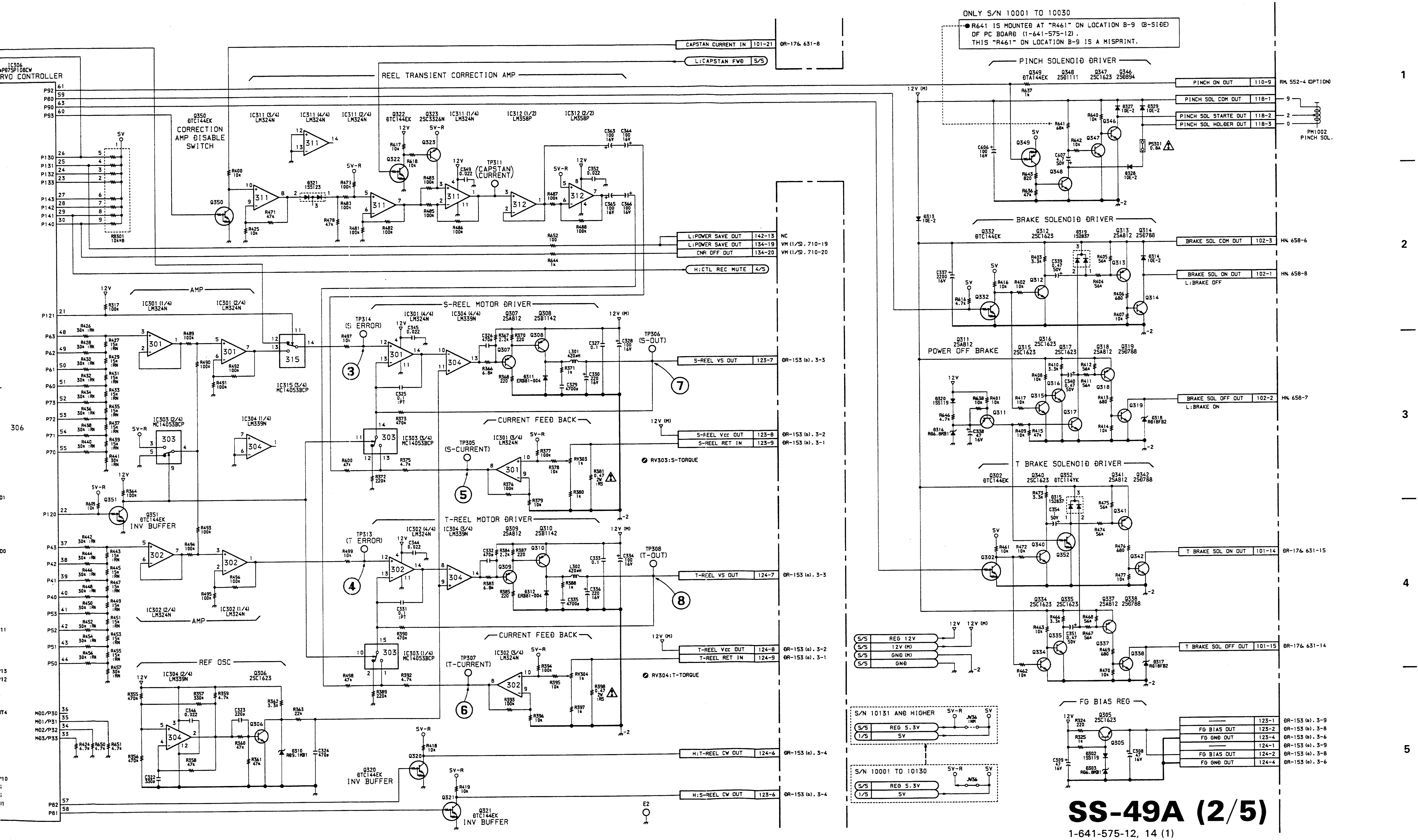

B
DUS-445
1-642-059-12
SONY
MADE IN JAPAN

DUS-445 — B SIDE —
1-642-059-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

NOTE:
The ⚠-marked components are critical to safety.
Replace only with same components as specified.

13-41

SS-49A (2/5), DUS-445

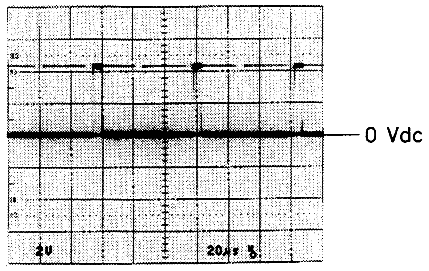

IC306
μPD75P108CW
SERVO CONTROLLER
REEL TRANSIENT CORRECTION AMP
Q350
DTC144EK
CORRECTION
AMP DISABLE
SWITCH
IC311 (3/4) LM324N
IC311 (4/4) LM324N
IC311 (2/4) LM324N
Q322 DTC144EK
Q323 2SC3326N
IC311 (1/4) LM324N
IC312 (1/2) LM358P
IC312 (2/2) LM358P
TP311 (CAPSTAN) (CURRENT)
CAPSTAN CURRENT IN 101-21
L:CAPSTAN FWD 5/5
DR-176, 631-8
L:POWER SAVE OUT 142-13 NC
L:POWER SAVE OUT 134-19 VM (1/5), 710-19
CNR OFF OUT 134-20 VM (1/5), 710-20
H:CTL REC MUTE 4/5
AMP
IC301 (1/4) LM324N
IC301 (2/4) LM324N
IC315 (3/4) MC14053BCP
IC303 (2/4) MC14053BCP
IC304 (1/4) LM339N
Q351 DTC144EK INV BUFFER
S-REEL MOTOR DRIVER
TP314 (S ERROR)
IC301 (4/4) LM324N
IC304 (4/4) LM339N
Q307 2SA812
Q308 2SB1142
TP306 (S-OUT)
S-REEL VS OUT 123-7 DR-153 (b), 3-3
CURRENT FEED BACK
TP305 (S-CURRENT)
IC301 (3/4) LM324N
IC303 (3/4) MC14053BCP
S-REEL Vcc OUT 123-8 DR-153 (b), 3-2
S-REEL RET IN 123-9 DR-153 (b), 3-1
RV303:S-TORQUE
AMP
IC302 (2/4) LM324N
IC302 (1/4) LM324N
T-REEL MOTOR DRIVER
TP313 (T ERROR)
IC302 (4/4) LM324N
IC304 (3/4) LM339N
Q309 2SA812
Q310 2SB1142
TP308 (T-OUT)
T-REEL VS OUT 124-7 DR-153 (a), 3-3
CURRENT FEED BACK
TP307 (T-CURRENT)
IC302 (3/4) LM324N
IC303 (1/4) MC14053BCP
T-REEL Vcc OUT 124-8 DR-153 (a), 3-2
T-REEL RET IN 124-9 DR-153 (a), 3-1
RV304:T-TORQUE
REF OSC
IC304 (2/4) LM339N
Q306 2SC1623
Q320 DTC144EK INV BUFFER
Q321 DTC144EK INV BUFFER
H:T-REEL CW OUT 124-6 DR-153 (a), 3-4
H:S-REEL CW OUT 123-6 DR-153 (b), 3-4
E2
ONLY S/N 10001 TO 10030
R641 IS MOUNTED AT "R461" ON LOCATION B-9 (B-SIDE)
OF PC BOARD (1-641-575-12).
THIS "R461" ON LOCATION B-9 IS A MISPRINT.
PINCH SOLENOID DRIVER
Q349 DTA144EK
Q348 2SD1111
Q347 2SC1623
Q346 2SB894
PINCH ON OUT 110-9 RM, 552-4 (OPTION)
PINCH SOL COM OUT 118-1
PINCH SOL STARTE OUT 118-2
PINCH SOL HOLDER OUT 118-3
PM1002
PINCH SOL.
PS301 0.8A
BRAKE SOLENOID DRIVER
Q332 DTC144EK
Q312 2SC1623
Q319 1S2837
Q313 2SA812
Q314 2SD788
BRAKE SOL COM OUT 102-3 HN, 658-6
BRAKE SOL ON OUT 102-1 HN, 658-8
L:BRAKE OFF
Q311 2SA812
POWER OFF BRAKE
Q315 2SC1623
Q316 2SC1623
Q317 2SC1623
Q318 2SA812
Q319 2SD788
BRAKE SOL OFF OUT 102-2 HN, 658-7
L:BRAKE ON
T BRAKE SOLENOID DRIVER
Q302 DTC144EK
Q340 2SC1623
Q352 DTC114YK
Q341 2SA812
Q342 2SD788
T BRAKE SOL ON OUT 101-14 DR-176, 631-15
Q334 2SC1623
Q335 2SC1623
Q337 2SA812
Q338 2SD788
T BRAKE SOL OFF OUT 101-15 DR-176, 631-14
REG 12V
12V (M)
GND (M)
GND
S/N 10131 AND HIGHER
REG 5.3V
5V
S/N 10001 TO 10130
REG 5.3V
5V
FG BIAS REG
Q305 2SC1623
FG BIAS OUT 123-1 DR-153 (b), 3-9
FG GND OUT 123-2 DR-153 (b), 3-8
123-4 DR-153 (b), 3-6
124-1 DR-153 (a), 3-9
FG BIAS OUT 124-2 DR-153 (a), 3-8
FG GND OUT 124-4 DR-153 (a), 3-6
1
2
3
4
5

SS-49A (2/5)

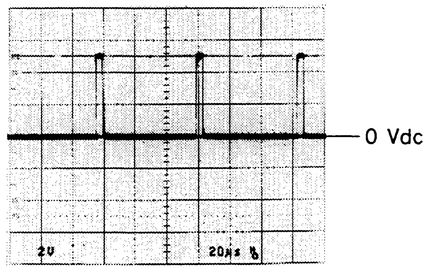
1-641-575-12, 14 (1)
SVO-9500MDP

SS-49A (3/5); CNR & FRAME MEMORY INDICATE INTERFACE

① CN134 pin 13 (E-9) STOP (E-E) mode



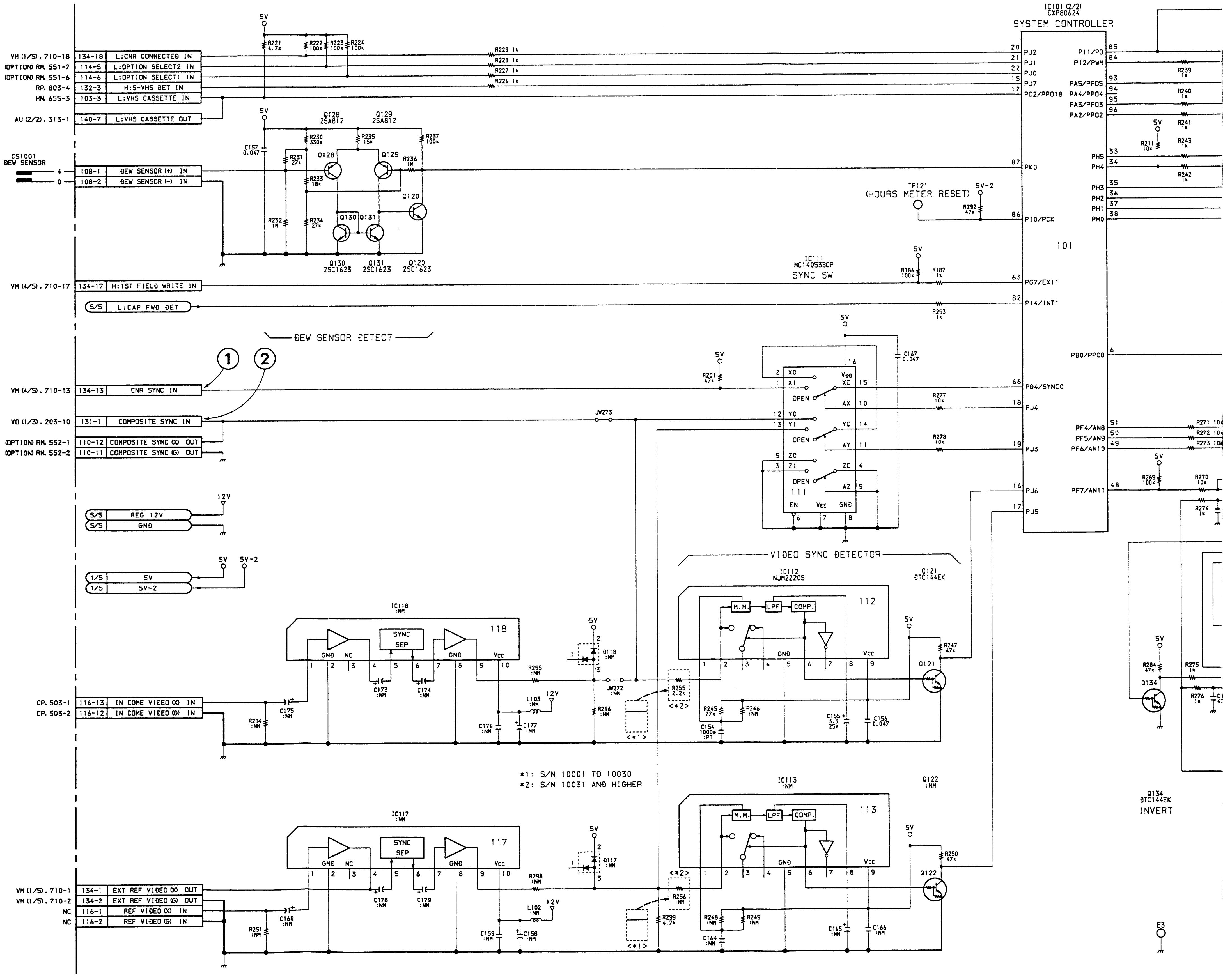
② CN131 pin 1 (L-4) STOP (E-E) mode



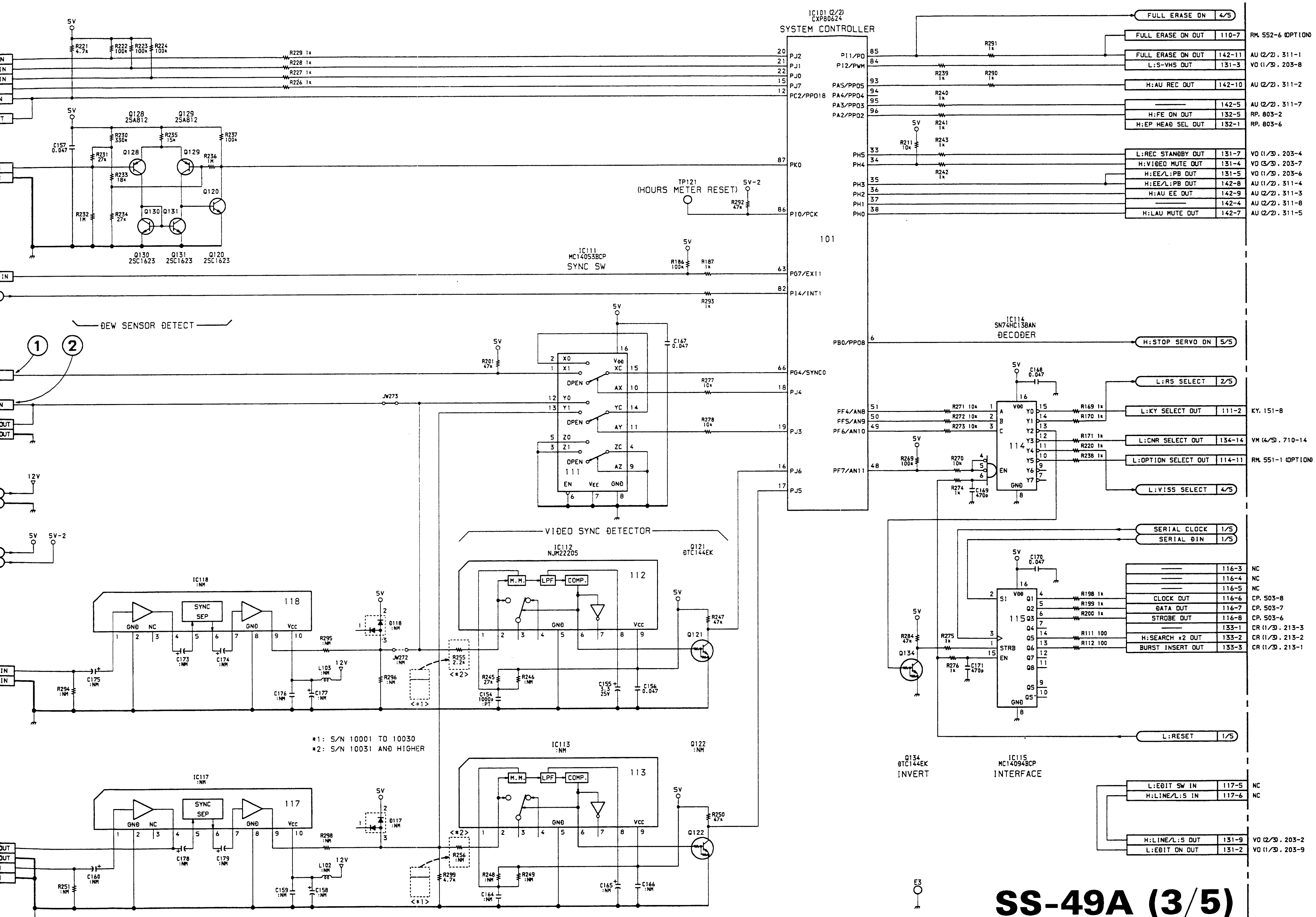
Measurement Condition

S-VIDEO IN: 75% color bars

STOP (E-E) mode: S-VHS


VM (1/5). 710-18
OPTION RM. SS1-7
OPTION RM. SS1-6
RP. 803-4
HN. 655-3
AU (2/2). 313-1
CS1001
DEW SENSOR
134-18 L:CNR CONNECTED IN
114-5 L:OPTION SELECT2 IN
114-6 L:OPTION SELECT1 IN
132-3 H:S-VHS DET IN
103-3 L:VHS CASSETTE IN
140-7 L:VHS CASSETTE OUT
108-1 DEW SENSOR (+) IN
108-2 DEW SENSOR (-) IN
VM (4/5). 710-17
134-17 H:1ST FIELD WRITE IN
5/5 L:CAP FWD DET
DEW SENSOR DETECT
Q128 2SA812
Q129 2SA812
Q130 2SC1623
Q131 2SC1623
Q120 2SC1623
①
②
VM (4/5). 710-13
134-13 CNR SYNC IN
VD (1/5). 203-10
131-1 COMPOSITE SYNC IN
OPTION RM. SS2-1
OPTION RM. SS2-2
110-12 COMPOSITE SYNC (D) OUT
110-11 COMPOSITE SYNC (G) OUT
5/5 REG 12V
5/5 GND
1/5 5V
1/5 5V-2
IC101 (2/2)
CXP80624
SYSTEM CONTROLLER
101
TP121
(HOURS METER RESET)
IC111
MC14053BCP
SYNC SW
111
VIDEO SYNC DETECTOR
IC112
NJM2220S
112
Q121
DTC144EK
IC118
:NM
118
SYNC SEP
CP. 503-1
CP. 503-2
116-13 IN COME VIDEO (D) IN
116-12 IN COME VIDEO (G) IN
*1: S/N 10001 TO 10030
*2: S/N 10031 AND HIGHER
IC113
:NM
113
Q122
:NM
IC117
:NM
117
VM (1/5). 710-1
VM (1/5). 710-2
NC
NC
134-1 EXT REF VIDEO (D) OUT
134-2 EXT REF VIDEO (G) OUT
116-1 REF VIDEO (D) IN
116-2 REF VIDEO (G) IN
Q134
DTC144EK
INVERT
E3
M.M.
LPF
COMP.

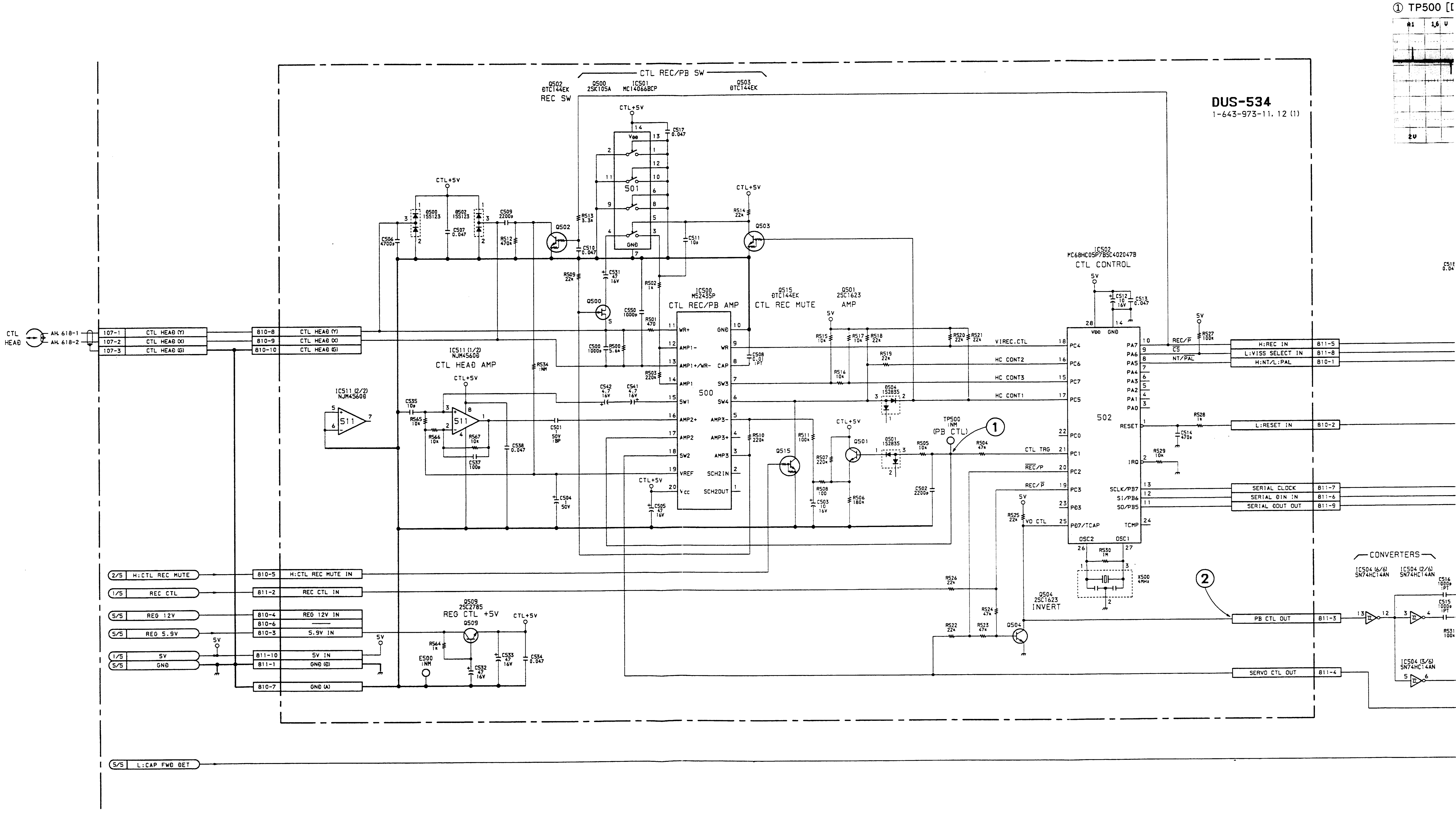
A | B | C | D | E | F | G | H |


IC101 (2/2)
CXP80624
SYSTEM CONTROLLER
101
FULL ERASE ON
FULL ERASE ON OUT
FULL ERASE ON OUT
L:S-VHS OUT
H:AU REC OUT
H:FE ON OUT
H:EP HEAD SEL OUT
L:REC STANDBY OUT
H:VIDEO MUTE OUT
H:EE/L:PB OUT
H:EE/L:PB OUT
H:AU EE OUT
H:LAU MUTE OUT
RM. SS2-6 (OPTION)
(HOURS METER RESET)
TP121
DEW SENSOR DETECT
IC111
MC14053BCP
SYNC SW
111
IC114
SN74HC138AN
DECODER
114
H:STOP SERVO ON
L:RS SELECT
L:KY SELECT OUT
L:CNR SELECT OUT
L:OPTION SELECT OUT
L:VISS SELECT
SERIAL CLOCK
SERIAL DIN
CLOCK OUT
DATA OUT
STROBE OUT
H:SEARCH x2 OUT
BURST INSERT OUT
L:RESET
IC115
MC14094BCP
INTERFACE
115
Q134
DTC144EK
INVERT
L:EDIT SW IN
H:LINE/L:S IN
H:LINE/L:S OUT
L:EDIT ON OUT
VIDEO SYNC DETECTOR
IC112
NJM2220S
112
Q121
DTC144EK
IC113
:NM
113
Q122
:NM
IC118
:NM
118
IC117
:NM
117
SYNC SEP
M.M.
LPF
COMP.
Q128 2SA812
Q129 2SA812
Q130 2SC1623
Q131 2SC1623
Q120 2SC1623
*1: S/N 10001 TO 10030
*2: S/N 10031 AND HIGHER
E3

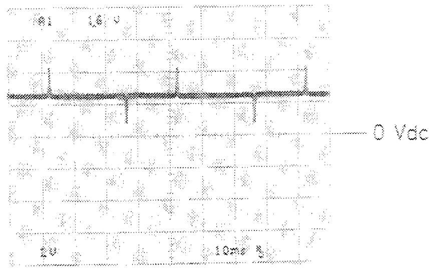
SS-49A (3/5)

1-641-575-12, 14 (1)
SVO-9500MDP

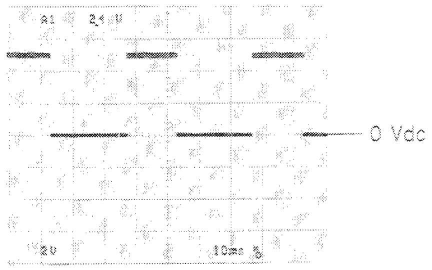
DUS-534; VISS CONTROL CTL HEAD AMP
SS-49 (4/5)


① TP500
A1
1.6 V
2V
DUS-534
1-643-973-11. 12 (1)
CTL HEAD
AH. 618-1
AH. 618-2
107-1 CTL HEAD (Y)
107-2 CTL HEAD (X)
107-3 CTL HEAD (G)
810-8 CTL HEAD (Y)
810-9 CTL HEAD (X)
810-10 CTL HEAD (G)
CTL REC/PB SW
Q502 DTC144EK REC SW
Q500 2SK105A
IC501 MC14066BCP
Q503 DTC144EK
CTL+5V
501
C517 0.047
D500 1SS123
D502 1SS123
C506 4700p
C507 0.047
C509 2200p
R512 470k
R513 3.3k
C510 0.047
R514 22k
C511 10p
R509 22k
C531 47 16V
R502 1k
Q500
C550 1000p
R501 470
C500 1000p
R500 5.6k
IC500 M52435P CTL REC/PB AMP
500
WR+ GND
AMP1- WR
AMP1+/WR- CAP
AMP1 SW3
SW1 SW4
AMP2+ AMP3-
AMP2 AMP3+
SW2 AMP3
VREF SCH2IN
Vcc SCH2OUT
C508 0.01 :PT
R503 220k
C542 4.7 16V
C541 4.7 16V
C505 47 16V
R510 220k
IC511 (1/2) NJM4560D CTL HEAD AMP
IC511 (2/2) NJM4560D
511
C535 10p
R565 10k
R566 10k
R567 10k
C537 100p
C538 0.047
R534 :NM
C501 1 50V :BP
C504 1 50V
Q515 DTC144EK CTL REC MUTE
Q515
Q501 2SC1623 AMP
Q501
5V
R515 10k
R517 10k
R518 22k
R519 22k
R516 10k
R520 22k
R521 22k
D504 1SS355
D501 1SS355
R511 100k
R507 220k
R508 100
C503 10 16V
R506 180k
R505 10k
R504 47k
C502 2200p
TP500 :NM (PB CTL)
①
VIREC.CTL
HC CONT2
HC CONT3
HC CONT1
CTL TRG
REC/P
REC/P
VD CTL
R525 22k
IC502 MC68HC05P7BSC402047B CTL CONTROL
502
C512 10 16V
C513 0.047
VDD GND
PC4 PC6 PC7 PC5 PC0 PC1 PC2 PC3 PD3 PD7/TCAP
PA7 PA6 PA5 PA4 PA3 PA2 PA1 PA0
RESET
IRQ
SCLK/PB7
SI/PB6
SO/PB5
TCMP
OSC2 OSC1
R530 1M
X500 4MHz
REC/P
CS
NT/PAL
R527 100k
R528 1k
C514 470p
R529 10k
H:REC IN 811-5
L:VISS SELECT IN 811-8
H:NT/L:PAL 810-1
L:RESET IN 810-2
SERIAL CLOCK 811-7
SERIAL DIN IN 811-6
SERIAL DOUT OUT 811-9
②
PB CTL OUT 811-3
SERVO CTL OUT 811-4
CONVERTERS
IC504 (6/6) SN74HC14AN
IC504 (2/6) SN74HC14AN
IC504 (3/6) SN74HC14AN
C516 1000p :PT
C515 1000p :PT
R531 100k
R526 22k
R524 47k
R522 22k
R523 47k
Q504 2SC1623 INVERT
Q504
2/5 H:CTL REC MUTE
810-5 H:CTL REC MUTE IN
1/5 REC CTL
811-2 REC CTL IN
5/5 REG 12V
810-4 REG 12V IN
810-6
5/5 REG 5.9V
810-3 5.9V IN
1/5 5V
811-10 5V IN
5/5 GND
811-1 GND (D)
810-7 GND (A)
Q509 2SC2785 REG CTL +5V
Q509
R564 1k
E500 :NM
C532 47 16V
C533 47 16V
C534 0.047
5/5 L:CAP FWD DET

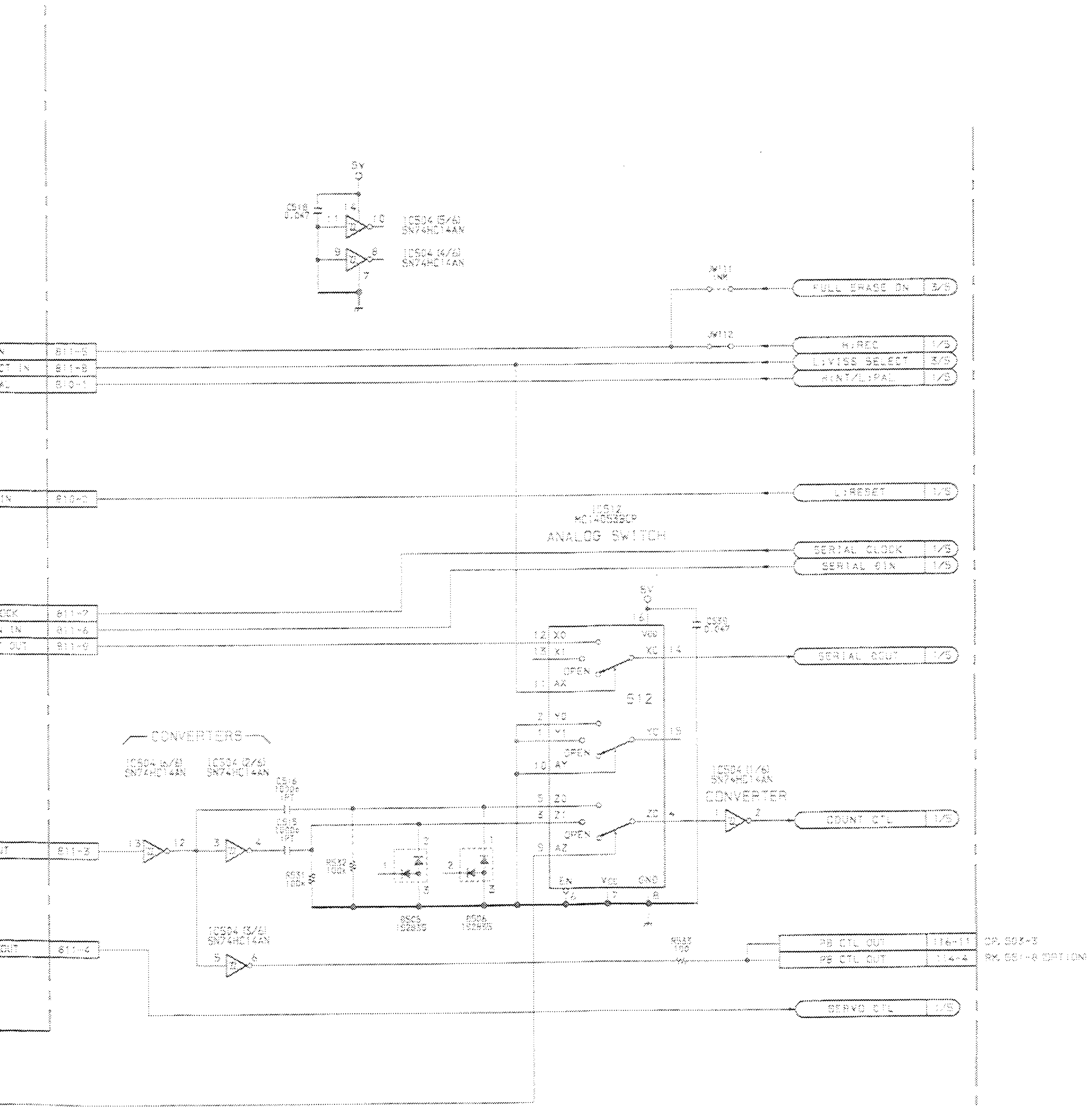
① TP500 [DUS-534 (C-1)] PB mode



② CN811 pin 3 (F-4) PB mode

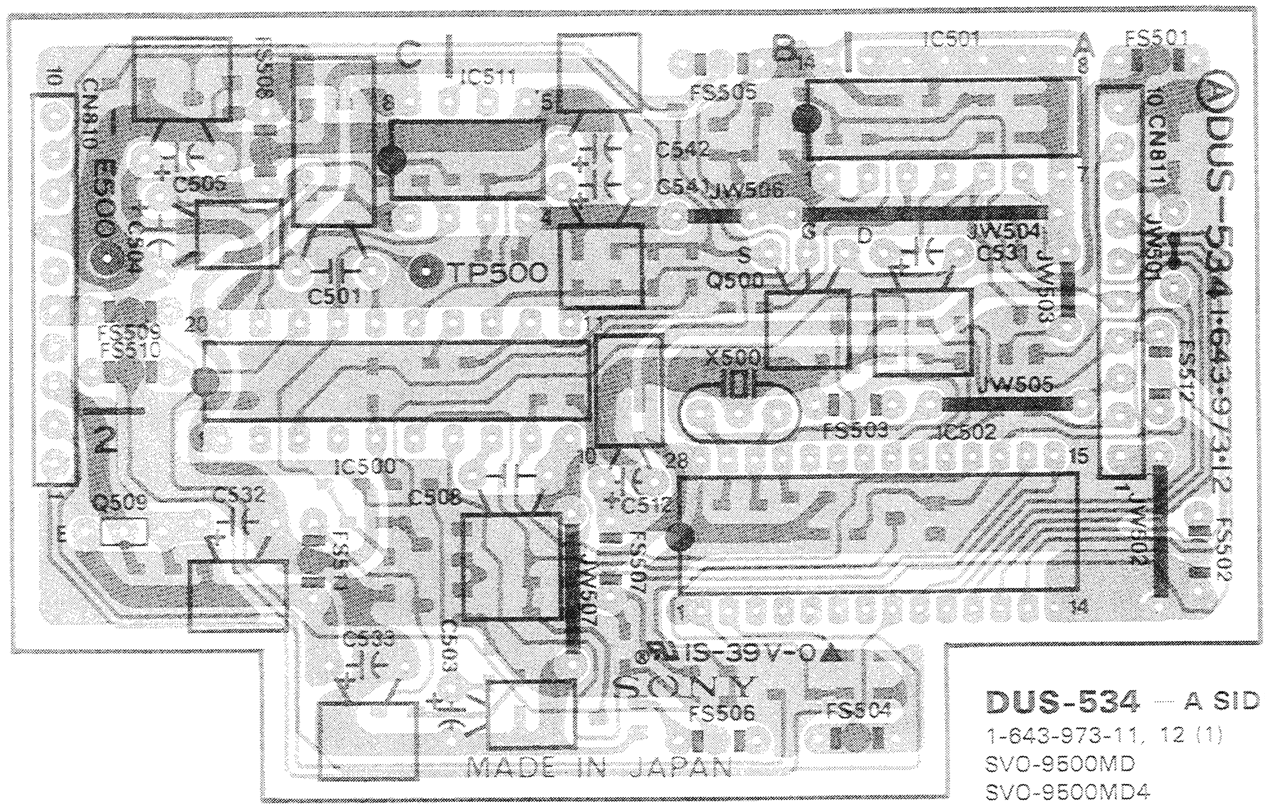


Measurement Condition
PB mode: KRV-45HPS


5V
IC504 (5/6) SN74HC14AN
IC504 (4/6) SN74HC14AN
FULL ERASE ON
HI REC
LIV/SS SELECT
U RESET
IC512 MC14053BCP
ANALOG SWITCH
SERIAL CLOCK
SERIAL SIN
SERIAL SOUT
512
OPEN
CONVERTERS
CONVERTER
COUNT CTL
PB CTL OUT
SERVO CTL

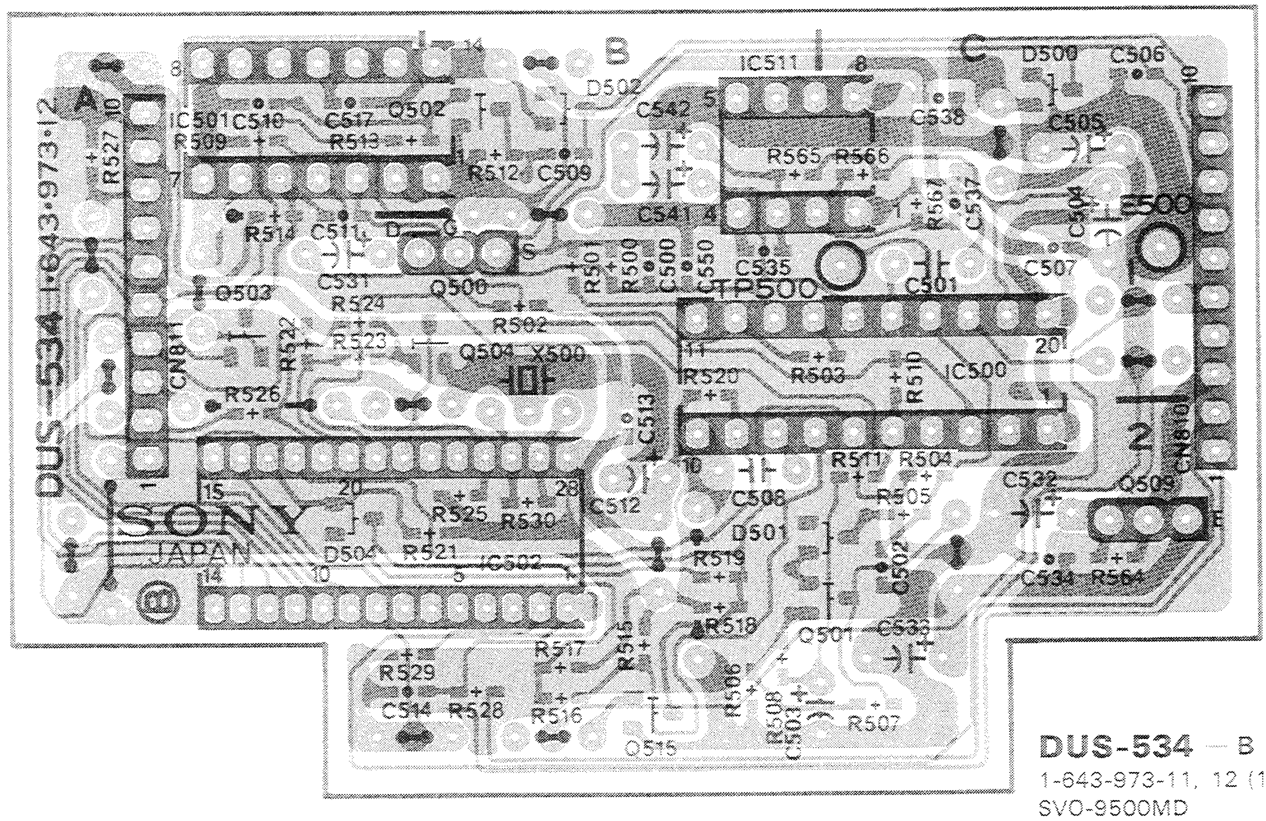
SS-49A (4/5)

1-641-575-12, 14 (1)
SVO-9500MDP


DUS-534 1-643-973-12
CN810
CN811
E500
TP500
IC500
IC501
IC502
IC511
Q500
Q509
X500
C501
C505
C508
C512
C531
C532
C533
C541
C542
JW504
JW505
JW506
FS501
FS502
FS503
FS504
FS505
FS506
IS-39V-0
SONY
MADE IN JAPAN

DUS-534 — A SIDE —

1-643-973-11, 12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


DUS-534 1-643-973-12
CN810
CN811
E500
TP500
IC500
IC501
IC502
IC511
Q500
Q501
Q502
Q503
Q504
Q509
Q515
X500
D500
D501
D502
D504
SONY
JAPAN

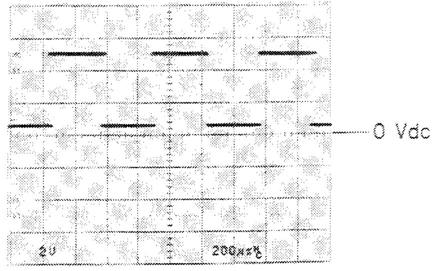
DUS-534 — B SIDE —

1-643-973-11, 12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

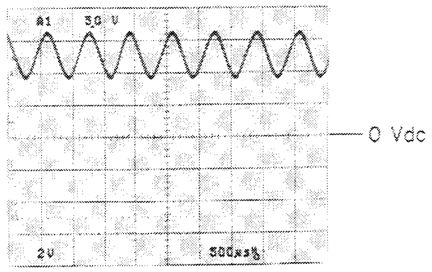
SS-49A (5/5)

SS-49A (5/5) ; CAPSTAN FG AMP POWER BLOCK

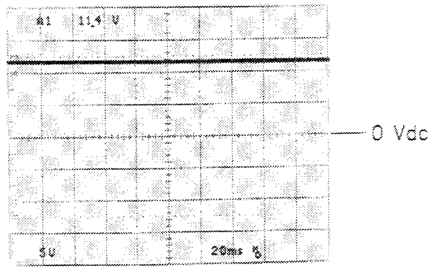
① TP103 (K-9) PB mode



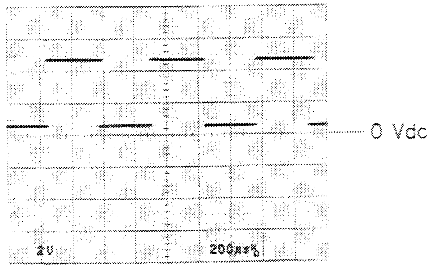
② TP503 (K-9) PB mode



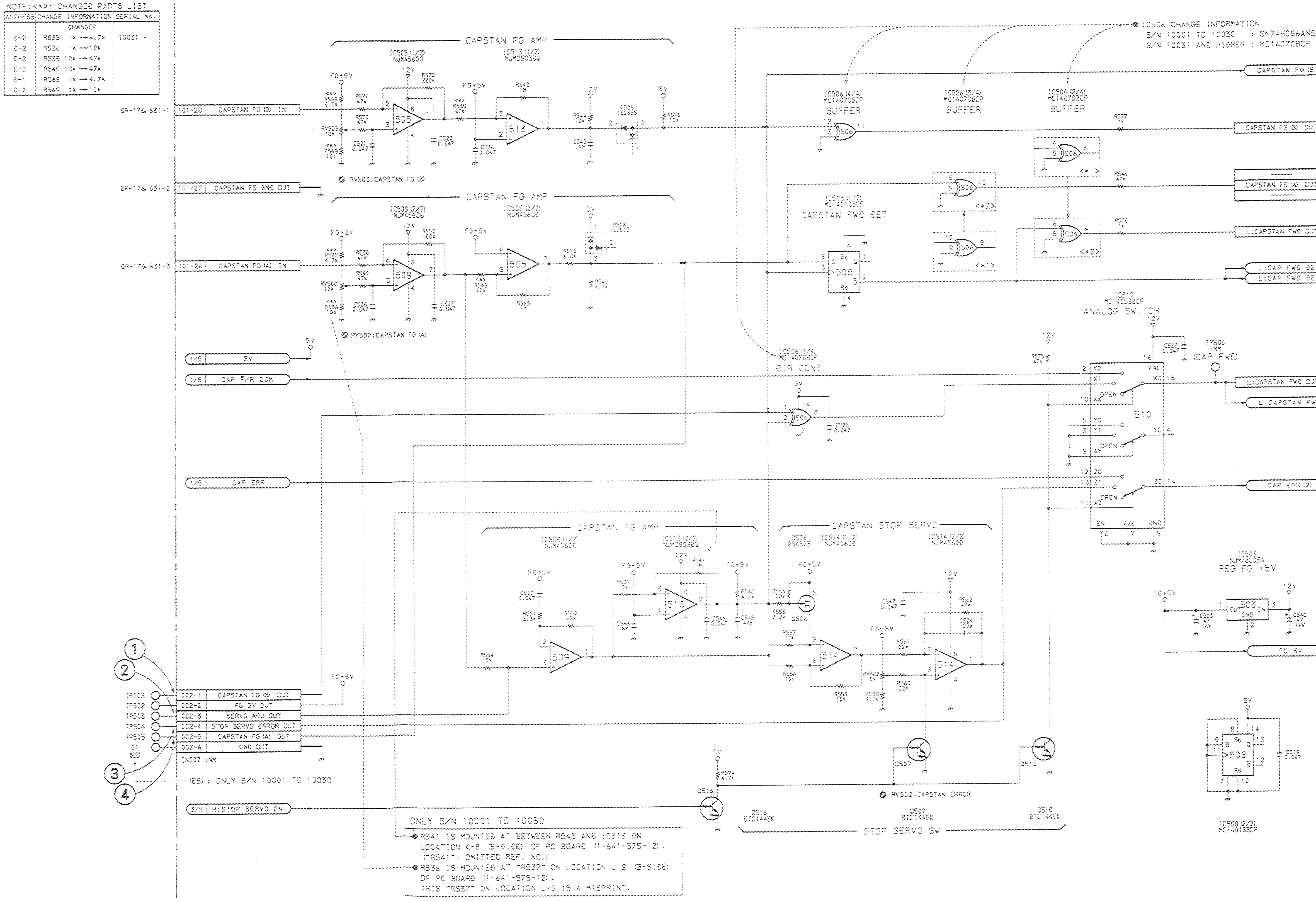
③ TP504 (K-9) PB mode



④ TP505 (K-9) PB mode



Measurement Condition
PB mode: KRV-45HPS


CAPSTAN FG AMP
IC505 (1/2) NJM4560D
IC513 (1/2) NJM2903D
FG+5V
12V
5V
R572 220k
R571 47k
R570 47k
R568 4.7k
R569 10k
RV503 10k
C521 0.047
C520 0.047
R539 47k
C534 0.047
R542 1M
R544 10k
C543 1M
D505 1SS235
R578 10k
505
513
RV503:CAPSTAN FG (B)
DR-176 631-1
101-28 CAPSTAN FG (B) IN
DR-176 631-2
101-27 CAPSTAN FG GND OUT
DR-176 631-3
101-26 CAPSTAN FG (A) IN
CAPSTAN FG AMP
IC509 (2/2) NJM4560D
IC505 (2/2) NJM4560D
R550 100k
R538 47k
R540 47k
R535 4.7k
R536 10k
RV500 10k
C526 0.047
C527 0.047
R549 47k
R563 1M
R573 6.8k
R548 4.7k
D506 1SS235
509
505
RV500:CAPSTAN FG (A)
1/5 5V
1/5 CAP F/R COM
1/5 CAP ERR
IC506 (4/4) MC14070BCP BUFFER
IC506 (3/4) MC14070BCP BUFFER
IC506 (2/4) MC14070BCP BUFFER
506
R577 1k
R546 47k
R576 1k
<*1>
<*2>
IC508 (1/2) MC14013BCP CAPSTAN FWD DET
508
CAPSTAN FG (B)
CAPSTAN FG (B) OUT
CAPSTAN FG (A) OUT
L:CAPSTAN FWD OUT
L:CAP FWD DET
L:CAP FWD DET
IC506 (1/4) MC14070BCP DIR CONT
C525 0.047
IC510 MC14053BCP ANALOG SWITCH
R575 47k
C528 0.047
TP506 :NM (CAP FWD)
X0
X1
AX
Y0
Y1
AY
Z0
Z1
AZ
OPEN
VDD
XC
YC
ZC
EN
VEE
GND
510
L:CAPSTAN FWD OUT
L:CAPSTAN FW
CAP ERR (2)
CAPSTAN FG AMP
IC509 (1/2) NJM4560D
IC513 (2/2) NJM2903D
C522 0.047
R551 3.3k
R552 47k
R554 10k
R537 10k
C544 1M
R541 1k
C546 0.047
R543 4.7k
C545 47p
509
513
CAPSTAN STOP SERVO
Q506 2SK523
IC514 (1/2) NJM4560D
IC514 (2/2) NJM4560D
R556 100k
R553 2.2k
R557 10k
R556 10k
R558 10k
RV502 10k
R555 4.7k
R561 22k
R560 22k
C547 0.047
R562 47k
C524 100p
514
IC503 NJM78L05A REG FG +5V
503
OUT
IN
GND
C523 47 16V
C540 47 16V
FG 5V
IC508 (2/2) MC14013BCP
C519 0.047
TP103
TP502
TP503
TP504
TP505
E1 (E5)
002-1 CAPSTAN FG (B) OUT
002-2 FG 5V OUT
002-3 SERVO ADJ OUT
002-4 STOP SERVO ERROR OUT
002-5 CAPSTAN FG (A) OUT
002-6 GND OUT
CN002 :NM
(E5) : ONLY S/N 10001 TO 10030
3/5 H:STOP SERVO ON
R574 4.7k
Q516
Q507
Q510
RV502:CAPSTAN ERROR
Q516 DTC144EK
Q507 DTC144EK
Q510 DTC144EK
STOP SERVO SW

NOTE: <*>: CHANGED PARTS LIST

ADDRESS	CHANGE INFORMATION	SERIAL No.
	CHANGED	
D-2	R535 1k → 4.7k	10031 ~
D-2	R536 1k → 10k	
E-2	R539 10k → 47k	
E-2	R549 10k → 47k	
D-1	R568 1k → 4.7k	
D-2	R569 1k → 10k	

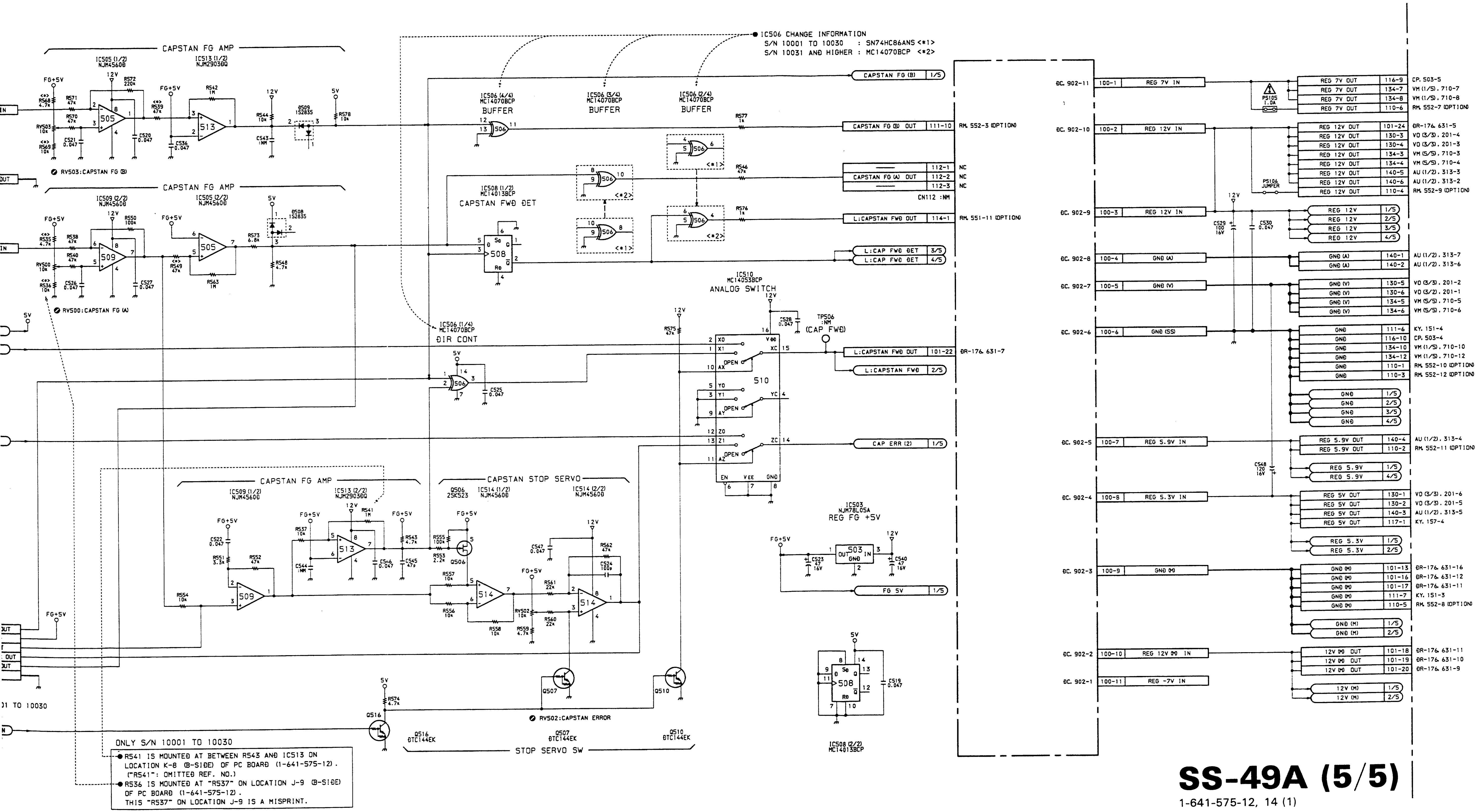
IC506 CHANGE INFORMATION
S/N 10001 TO 10030 : SN74HC86ANS
S/N 10031 AND HIGHER : MC14070BCP

ONLY S/N 10001 TO 10030

- R541 IS MOUNTED AT BETWEEN R543 AND IC513 ON LOCATION K-8 (B-SIDE) OF PC BOARD (1-641-575-12). ("R541": OMITTED REF. NO.)
- R536 IS MOUNTED AT "R537" ON LOCATION J-9 (B-SIDE) OF PC BOARD (1-641-575-12). THIS "R537" ON LOCATION J-9 IS A MISPRINT.

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

13-47


CAPSTAN FG AMP
IC505 (1/2) NJM4560D
IC513 (1/2) NJM2903DQ
IC509 (2/2) NJM4560D
IC505 (2/2) NJM4560D
IC509 (1/2) NJM4560D
IC513 (2/2) NJM2903DQ
RV503:CAPSTAN FG (B)
RV500:CAPSTAN FG (A)
RV502:CAPSTAN ERROR
IC506 CHANGE INFORMATION
S/N 10001 TO 10030 : SN74HC86ANS <*1>
S/N 10031 AND HIGHER : MC14070BCP <*2>
IC506 (4/4) MC14070BCP BUFFER
IC506 (3/4) MC14070BCP BUFFER
IC506 (2/4) MC14070BCP BUFFER
IC506 (1/4) MC14070BCP DIR CONT
IC508 (1/2) MC14013BCP CAPSTAN FWD DET
IC508 (2/2) MC14013BCP
IC510 MC14053BCP ANALOG SWITCH
IC503 NJM78L05A REG FG +5V
TP506 :NM (CAP FWD)
CAPSTAN STOP SERVO
Q506 2SK523
IC514 (1/2) NJM4560D
IC514 (2/2) NJM4560D
Q516 DTC144EK
Q507 DTC144EK
Q510 DTC144EK
STOP SERVO SW
CAPSTAN FG (B) 1/5
CAPSTAN FG (B) OUT 111-10 RM. 552-3 (OPTION)
112-1 NC
CAPSTAN FG (A) OUT 112-2 NC
112-3 NC
CN112 :NM
L:CAPSTAN FWD OUT 114-1 RM. 551-11 (OPTION)
L:CAP FWD DET 3/5
L:CAP FWD DET 4/5
L:CAPSTAN FWD OUT 101-22 DR-176. 631-7
L:CAPSTAN FWD 2/5
CAP ERR (2) 1/5
FG 5V 1/5
DC. 902-11 100-1 REG 7V IN
DC. 902-10 100-2 REG 12V IN
DC. 902-9 100-3 REG 12V IN
DC. 902-8 100-4 GND (A)
DC. 902-7 100-5 GND (V)
DC. 902-6 100-6 GND (SS)
DC. 902-5 100-7 REG 5.9V IN
DC. 902-4 100-8 REG 5.3V IN
DC. 902-3 100-9 GND (M)
DC. 902-2 100-10 REG 12V (M) IN
DC. 902-1 100-11 REG -7V IN
PS105 1.0A
PS106 JUMPER
REG 7V OUT 116-9 CP. 503-5
REG 7V OUT 134-7 VM (1/5). 710-7
REG 7V OUT 134-8 VM (1/5). 710-8
REG 7V OUT 110-6 RM. 552-7 (OPTION)
REG 12V OUT 101-24 DR-176. 631-5
REG 12V OUT 130-3 VD (3/3). 201-4
REG 12V OUT 130-4 VD (3/3). 201-3
REG 12V OUT 134-3 VM (5/5). 710-3
REG 12V OUT 134-4 VM (5/5). 710-4
REG 12V OUT 140-5 AU (1/2). 313-3
REG 12V OUT 140-6 AU (1/2). 313-2
REG 12V OUT 110-4 RM. 552-9 (OPTION)
REG 12V 1/5
REG 12V 2/5
REG 12V 3/5
REG 12V 4/5
GND (A) 140-1 AU (1/2). 313-7
GND (A) 140-2 AU (1/2). 313-6
GND (V) 130-5 VD (3/3). 201-2
GND (V) 130-6 VD (3/2). 201-1
GND (V) 134-5 VM (5/5). 710-5
GND (V) 134-6 VM (5/5). 710-6
GND 111-6 KY. 151-4
GND 116-10 CP. 503-4
GND 134-10 VM (1/5). 710-10
GND 134-12 VM (1/5). 710-12
GND 110-1 RM. 552-10 (OPTION)
GND 110-3 RM. 552-12 (OPTION)
GND 1/5
GND 2/5
GND 3/5
GND 4/5
REG 5.9V OUT 140-4 AU (1/2). 313-4
REG 5.9V OUT 110-2 RM. 552-11 (OPTION)
REG 5.9V 1/5
REG 5.9V 4/5
REG 5V OUT 130-1 VD (3/3). 201-6
REG 5V OUT 130-2 VD (3/3). 201-5
REG 5V OUT 140-3 AU (1/2). 313-5
REG 5V OUT 117-1 KY. 157-4
REG 5.3V 1/5
REG 5.3V 2/5
GND (M) 101-13 DR-176. 631-16
GND (M) 101-16 DR-176. 631-12
GND (M) 101-17 DR-176. 631-11
GND (M) 111-7 KY. 151-3
GND (M) 110-5 RM. 552-8 (OPTION)
GND (M) 1/5
GND (M) 2/5
12V (M) OUT 101-18 DR-176. 631-11
12V (M) OUT 101-19 DR-176. 631-10
12V (M) OUT 101-20 DR-176. 631-9
12V (M) 1/5
12V (M) 2/5
01 TO 10030

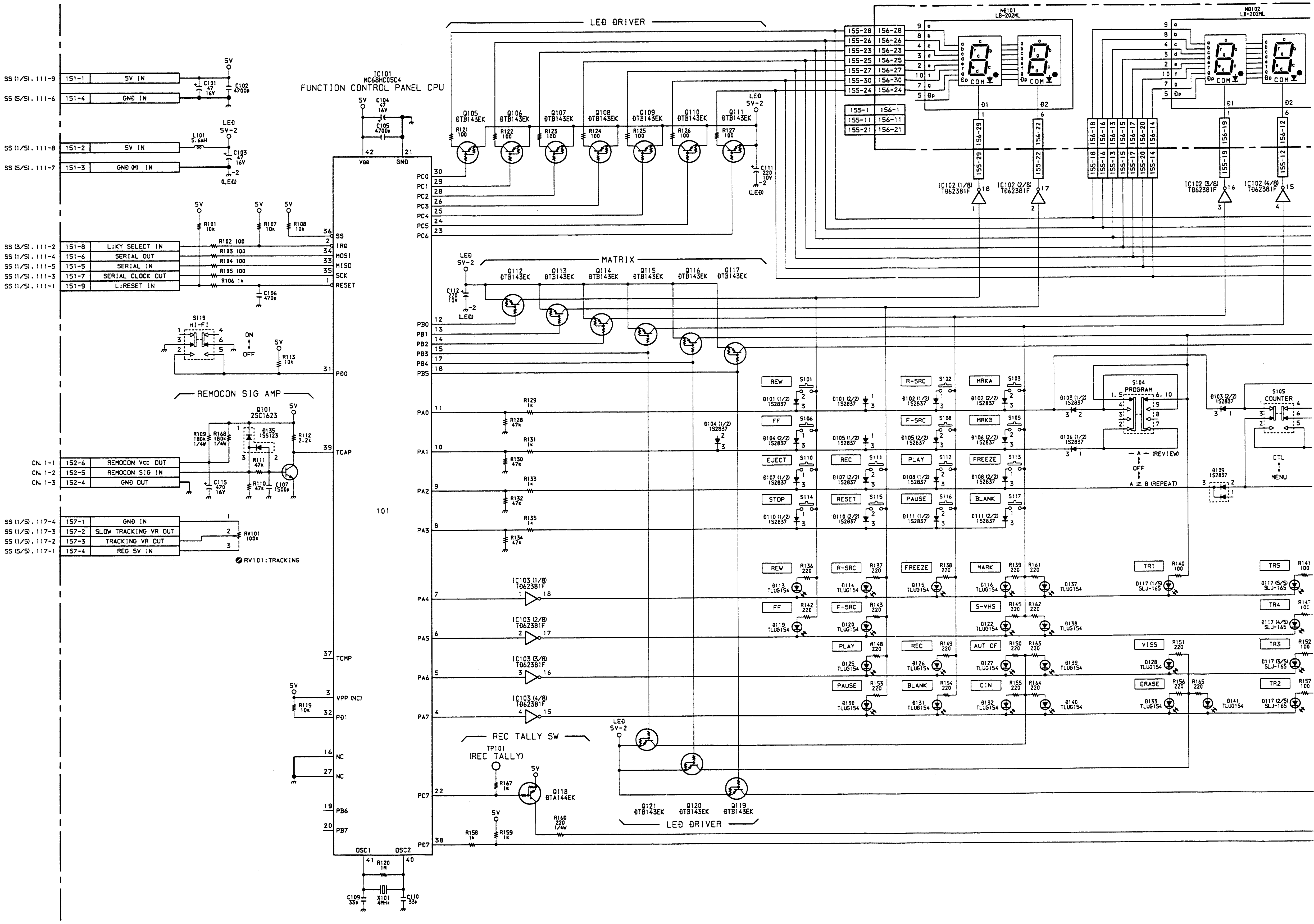
ONLY S/N 10001 TO 10030

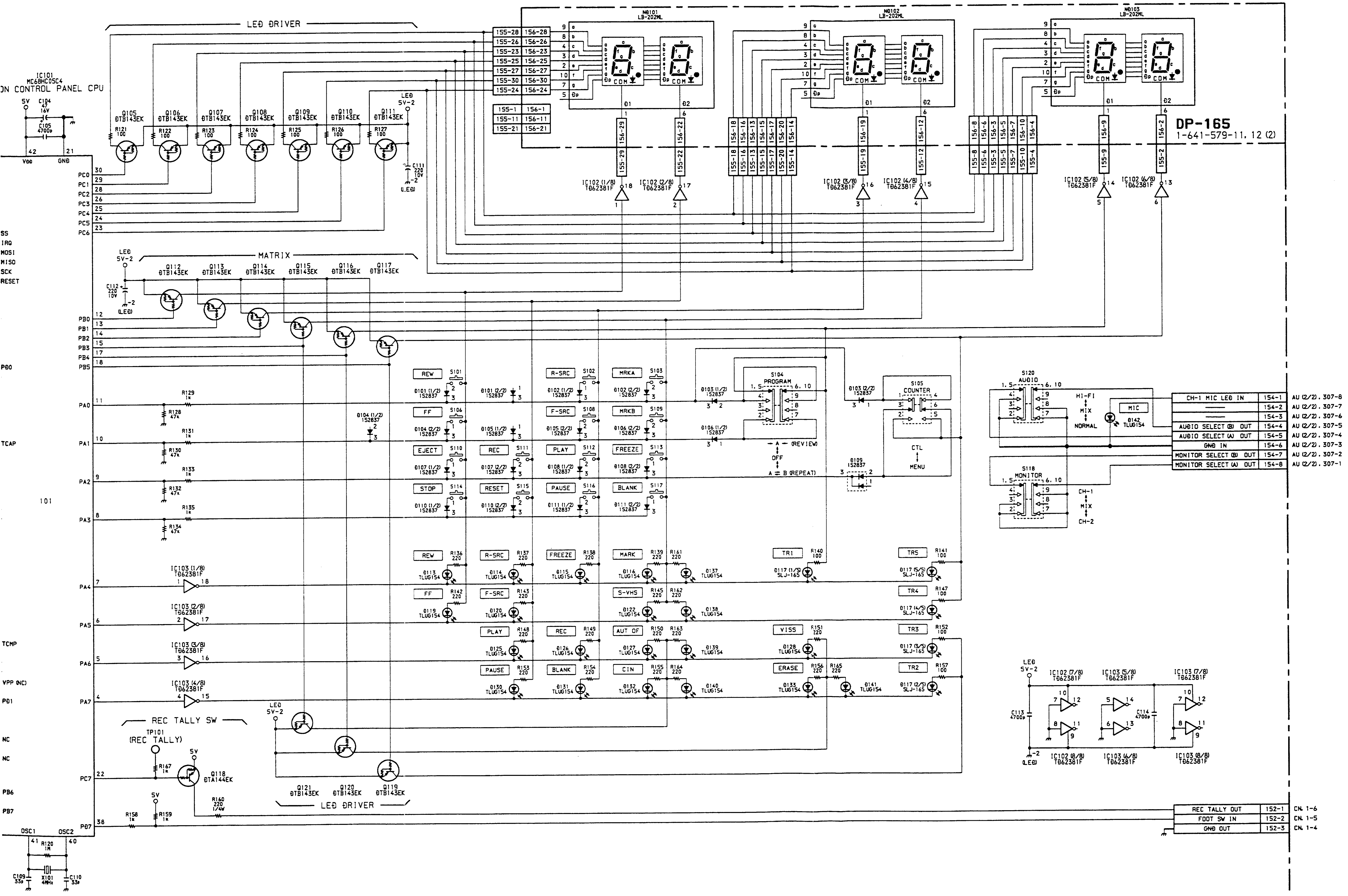
- R541 IS MOUNTED AT BETWEEN R543 AND IC513 ON LOCATION K-8 (B-SIDE) OF PC BOARD (1-641-575-12). ("R541": OMITTED REF. NO.)
- R536 IS MOUNTED AT "R537" ON LOCATION J-9 (B-SIDE) OF PC BOARD (1-641-575-12). THIS "R537" ON LOCATION J-9 IS A MISPRINT.

SS-49A (5/5)

1-641-575-12, 14 (1)
SVO-9500MDP

KY-219; FUNCTION KEY/LED/SWITCH
DP-165; COUNTER DISPLAY


IC101
MC68HC05C4
FUNCTION CONTROL PANEL CPU
LED DRIVER
MATRIX
REMOCON SIG AMP
REC TALLY SW
TP101 (REC TALLY)
LED DRIVER
ND101 LB-202ML
ND102 LB-202ML
SS (1/5), 111-9 151-1 5V IN
SS (5/5), 111-6 151-4 GND IN
SS (1/5), 111-8 151-2 5V IN
SS (5/5), 111-7 151-3 GND (M) IN
SS (3/5), 111-2 151-8 L:KY SELECT IN
SS (1/5), 111-4 151-6 SERIAL OUT
SS (1/5), 111-5 151-5 SERIAL IN
SS (1/5), 111-3 151-7 SERIAL CLOCK OUT
SS (1/5), 111-1 151-9 L:RESET IN
CN 1-1 152-6 REMOCON Vcc OUT
CN 1-2 152-5 REMOCON SIG IN
CN 1-3 152-4 GND OUT
SS (1/5), 117-4 157-1 GND IN
SS (1/5), 117-3 157-2 SLOW TRACKING VR OUT
SS (1/5), 117-2 157-3 TRACKING VR OUT
SS (5/5), 117-1 157-4 REG 5V IN
RV101:TRACKING
S119 HI-FI
ON OFF
Q101 2SC1623
S104 PROGRAM
A (REVIEW)
OFF
A B (REPEAT)
S105 COUNTER
CTL
MENU
REW
FF
EJECT
STOP
REC
RESET
R-SRC
F-SRC
PLAY
PAUSE
MRKA
MRKB
FREEZE
BLANK
MARK
S-VHS
AUT OF
CIN
TR1
VISS
ERASE
TRS
TR4
TR3
TR2
LED 5V-2
101
OSC1 OSC2
X101 4MHz


LED DRIVER
IC101 MC68HC05C4
ON CONTROL PANEL CPU
MATRIX
REC TALLY SW
TP101 (REC TALLY)
LED DRIVER
ND101 LB-202ML
ND102 LB-202ML
ND103 LB-202ML
DP-165
1-641-579-11, 12 (2)
S104 PROGRAM
A — (REVIEW)
OFF
A ⇄ B (REPEAT)
S105 COUNTER
CTL
MENU
S120 AUDIO
HI-FI
MIX
NORMAL
S118 MONITOR
CH-1
MIX
CH-2
MIC
CH-1 MIC LED IN
AUDIO SELECT (B) OUT
AUDIO SELECT (A) OUT
GND IN
MONITOR SELECT (B) OUT
MONITOR SELECT (A) OUT
REC TALLY OUT
FOOT SW IN
GND OUT
REW
FF
EJECT
STOP
R-SRC
F-SRC
REC
RESET
PLAY
PAUSE
MRKA
MRKB
FREEZE
BLANK
S-VHS
AUT OF
CIN
MARK
TR1
VISS
ERASE
TR5
TR4
TR3
TR2

KY-219

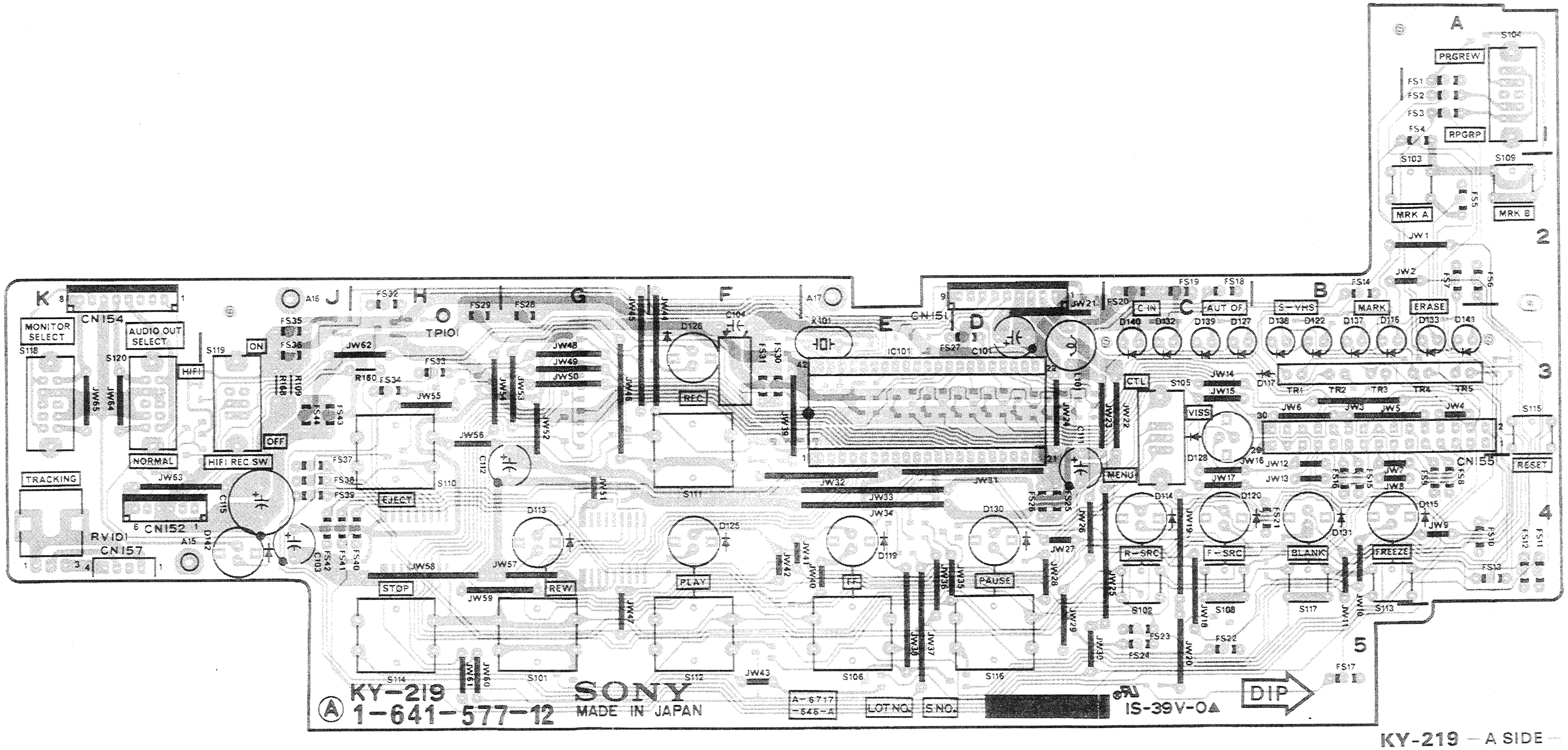
1-641-577-11, 12 (2)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

KY-219 ; FUNCTION KEY/LED/SWITCH
DP-165 ; COUNTER DISPLAY

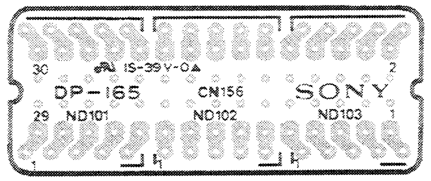
KY-219 (1-641-577-11, 12)

CN151	E-3
CN152	K-4
CN154	K-2
CN155	A-4
CN157	K-4
D101	G-5 *
D102	C-5 *
D103	D-5 *
D104	E-5 *
D105	C-5 *
D106	A-1 *
D107	H-4 *
D108	F-5 *
D109	D-4 *
D110	E-5 *
D111	D-5 *
D113	G-4
D114	C-4
D115	A-4
D116	B-3
D117	B-3
D119	E-4
D120	C-4
D122	B-3
D125	F-4
D126	F-3
D127	C-3
D128	C-3
D130	D-4
D131	B-4
D132	C-3
D133	A-3
D135	K-3 *
D137	B-3
D138	B-3
D139	C-3
D140	C-3
D141	A-3
D142	J-4
IC101	E-3
IC102	H-4 *
IC103	G-4 *
Q101	K-4 *
Q105	E-3 *
Q106	E-3 *
Q107	D-3 *
Q108	D-3 *
Q109	D-3 *
Q110	D-3 *
Q111	D-3 *
Q112	G-3 *
Q113	G-3 *
Q114	G-3 *
Q115	G-3 *
Q116	G-3 *
Q117	G-3 *
Q118	H-3 *
Q119	H-3 *
Q120	H-3 *
Q121	H-3 *
RV101	K-4
S101	G-5
S102	C-5
S103	A-2
S104	A-1
S105	C-3
S106	E-5
S108	C-5
S109	A-2
S110	H-4
S111	F-4
S112	F-5
S113	B-5
S114	H-5
S115	A-3
S116	D-5
S117	B-5
S118	K-3
S119	J-3
S120	K-3
TP101	H-3
X101	E-3

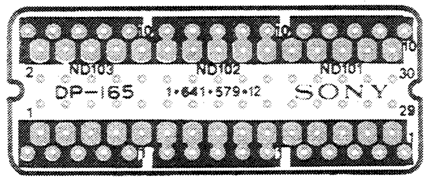
* mark ; B SIDE mount


A
B
C
D
E
F
G
H
J
K
2
3
4
5
PRGREW
RPGRP
S104
S103
S109
MRK A
MRK B
JW1
JW2
C-IN
AUT OF
S-VHS
MARK
ERASE
CTL
VISS
MENU
RESET
S105
S115
CN155
CN151
IC101
X101
TP101
CN154
MONITOR SELECT
AUDIO OUT SELECT
S118
S120
S119
ON
HIFI
OFF
NORMAL
HIFI REC SW
TRACKING
RV101
CN157
CN152
EJECT
S110
REC
S111
R-SRC
F-SRC
BLANK
FREEZE
S102
S108
S117
S113
STOP
REW
PLAY
FF
PAUSE
S114
S101
S112
S106
S116
KY-219
1-641-577-12
SONY
MADE IN JAPAN
A-6717
546-A
LOT NO.
S NO.
IS-39V-0
DIP

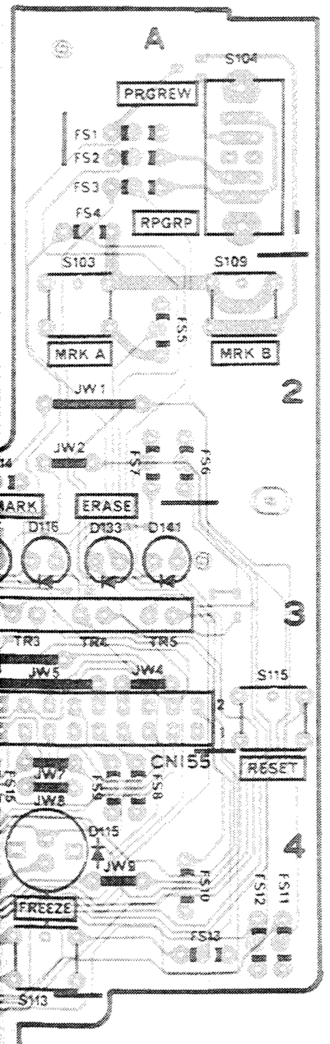
KY-219 — A SIDE —
1-641-577-11, 12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


DP-165
CN156
SONY
ND101
ND102
ND103
IS-39Y-0
30
29
2
1

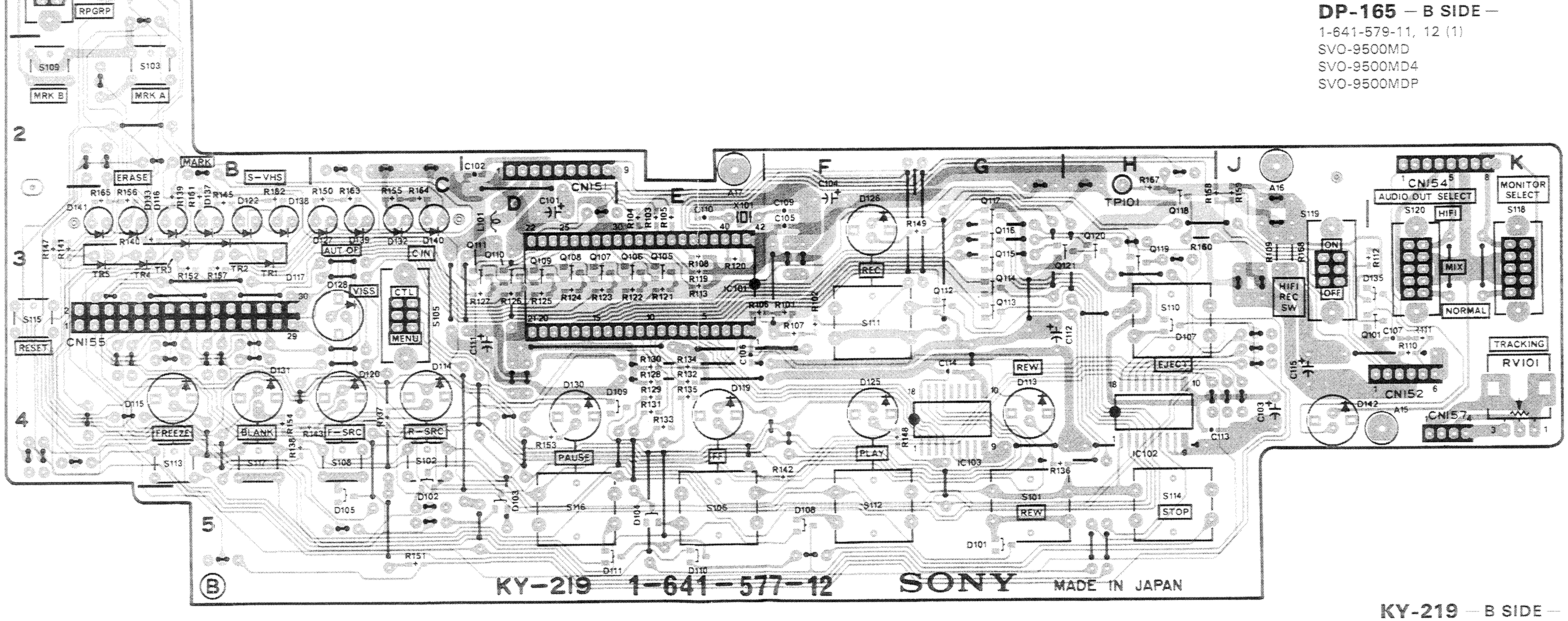
DP-165 — A SIDE —
1-641-579-11, 12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


DP-165
1-641-579-12
SONY
ND103
ND102
ND101
2
1
30
29

DP-165 — B SIDE —
1-641-579-11, 12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


A
PRGREW
RPGRP
S104
S103
S109
MRK A
MRK B
ERASE
MARK
RESET
FREEZE
CN155
2
3
4

KY-219 — A SIDE —
1-641-577-11, 12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

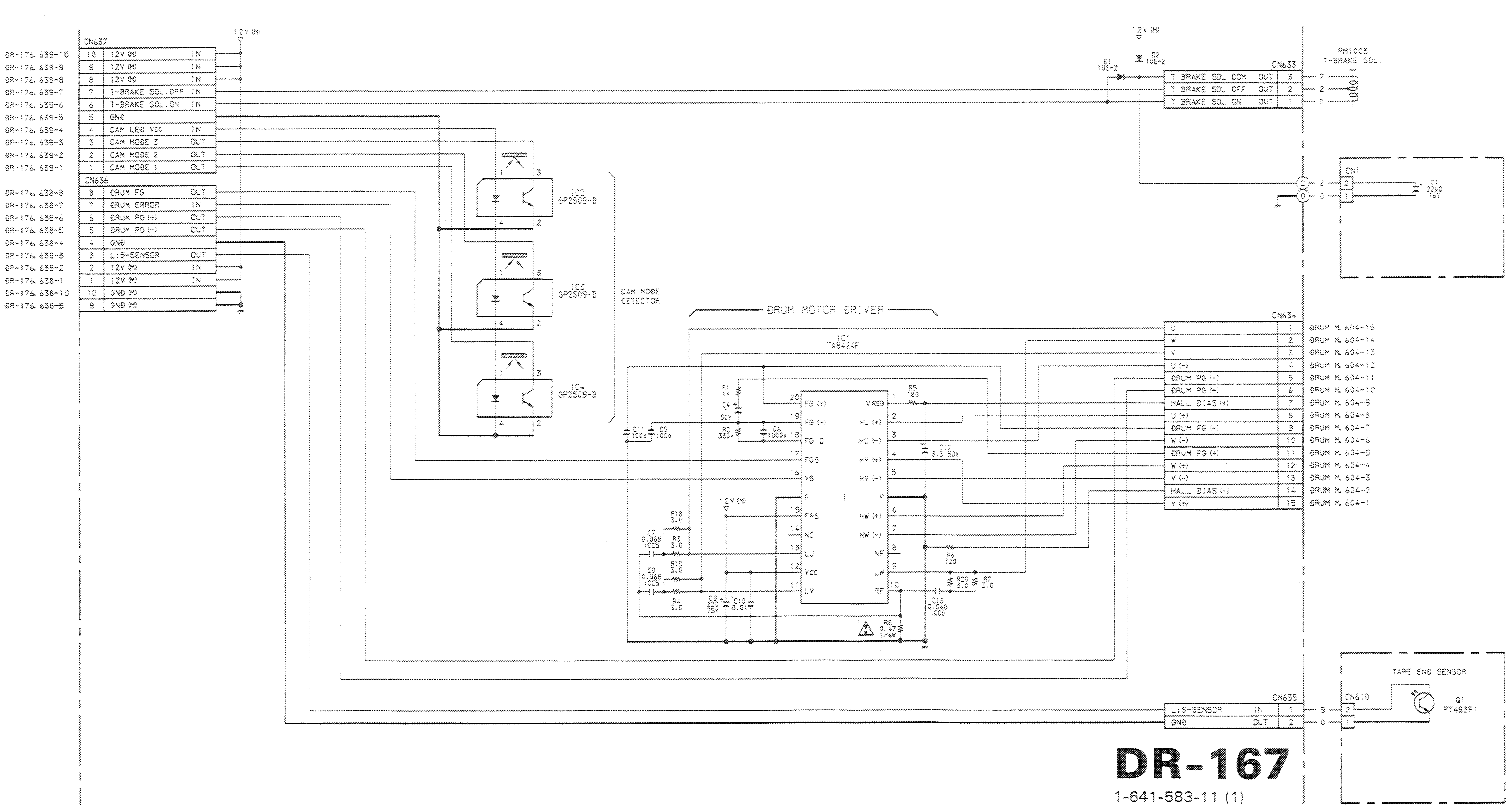

KY-219 1-641-577-12 SONY MADE IN JAPAN
A
B
C
D
E
F
G
H
J
K
2
3
4
5
PRGREW
RPGRP
MRK B
MRK A
ERASE
MARK
S-VHS
AUT OFF
C IN
VISS
CTL
MENU
RESET
CN155
CN151
IC101
IC102
IC103
CN154
AUDIO OUT SELECT
MONITOR SELECT
HIFI
MIX
NORMAL
ON
OFF
HIFI REC SW
TRACKING
RV101
CN152
CN157
TP101
FREEZE
BLANK
F-SRC
R-SRC
PAUSE
FF
PLAY
REW
EJECT
STOP
REC

KY-219 — B SIDE —
1-641-577-11, 12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

DR-167 ; DRUM MOTOR DRIVER
CAM MODE DETECTOR

DUS-544 ; CAPACITOR for
T-BRAKE SOLENOID

SE-151 ; TAPE END SENSOR

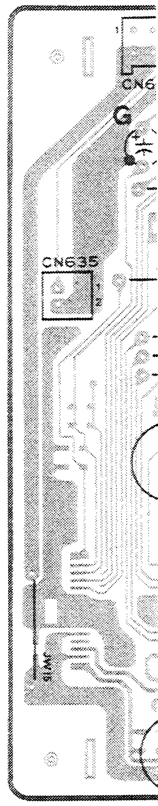

CN637
12V (M)
T-BRAKE SOL. OFF
T-BRAKE SOL. ON
GND
CAM LED VCC
CAM MODE 3
CAM MODE 2
CAM MODE 1
CN636
DRUM FG
DRUM ERROR
DRUM PG (+)
DRUM PG (-)
L:S-SENSOR
IC3 GP2S09-B
IC2 GP2S09-B
IC4 GP2S09-B
CAM MODE DETECTOR
DRUM MOTOR DRIVER
IC1 TA8424F
CN633
T BRAKE SOL COM
T BRAKE SOL OFF
T BRAKE SOL ON
PM1003 T-BRAKE SOL.
CN634
HALL BIAS (+)
HALL BIAS (-)
CN635
L:S-SENSOR
GND
CN1
C1
CN610
TAPE END SENSOR
Q1 PT483F1

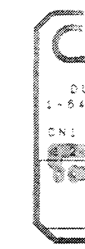
DUS-544
1-644-095-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

DR-167
1-641-583-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

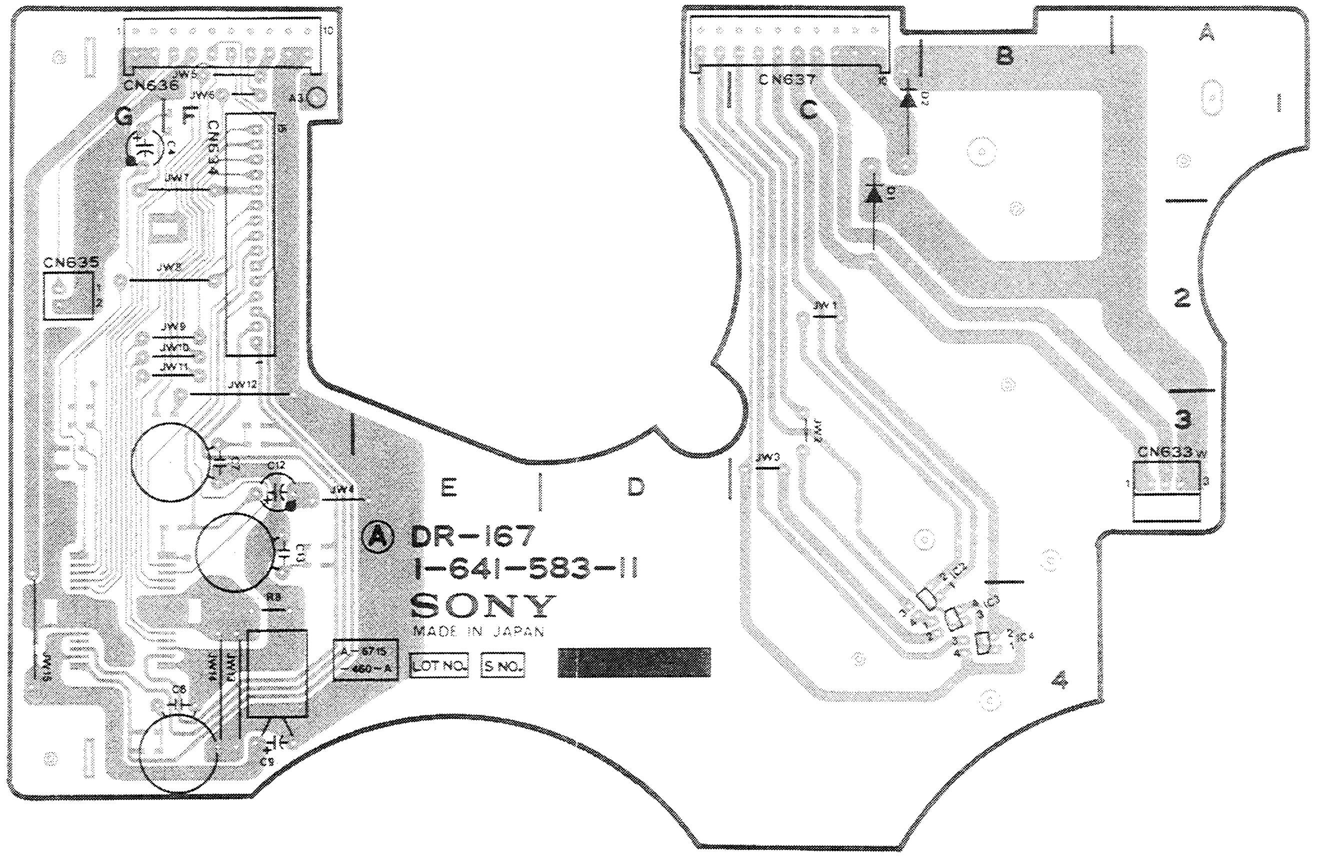
SE-151
1-637-245-13 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

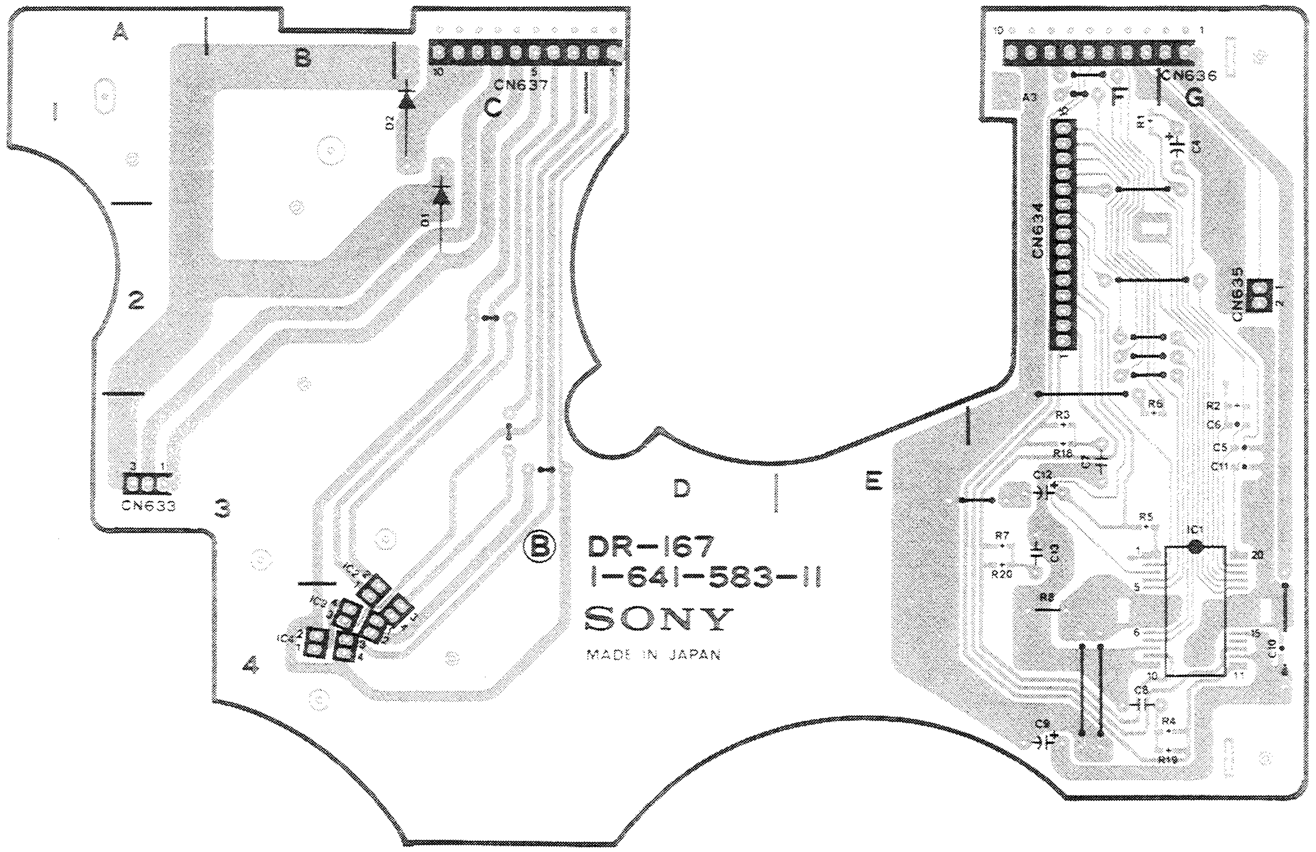




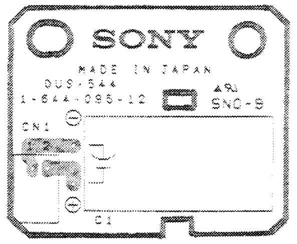
DUS-
1-644-0
SVO-95
SVO-95
SVO-95


CN636
CN637
CN634
CN635
CN633
G
F
A
B
C
D
E
2
3
4
Ⓐ DR-167
1-641-583-11
SONY
MADE IN JAPAN
LOT NO.
S NO.

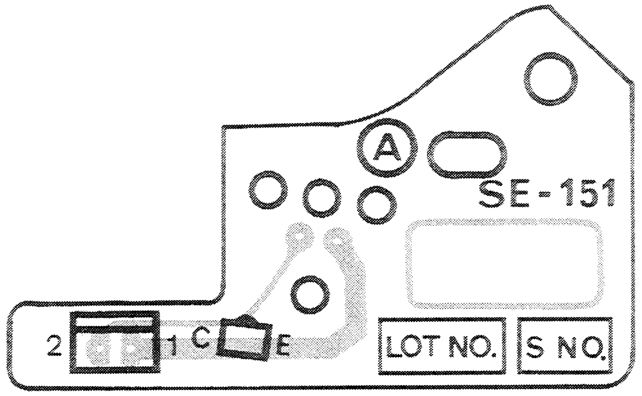
DR-167 — A SIDE —
1-641-583-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


CN636
CN637
CN634
CN635
CN633
IC1
A
B
C
D
E
F
G
2
3
4
Ⓑ DR-167
1-641-583-11
SONY
MADE IN JAPAN

DR-167 — B SIDE —
1-641-583-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

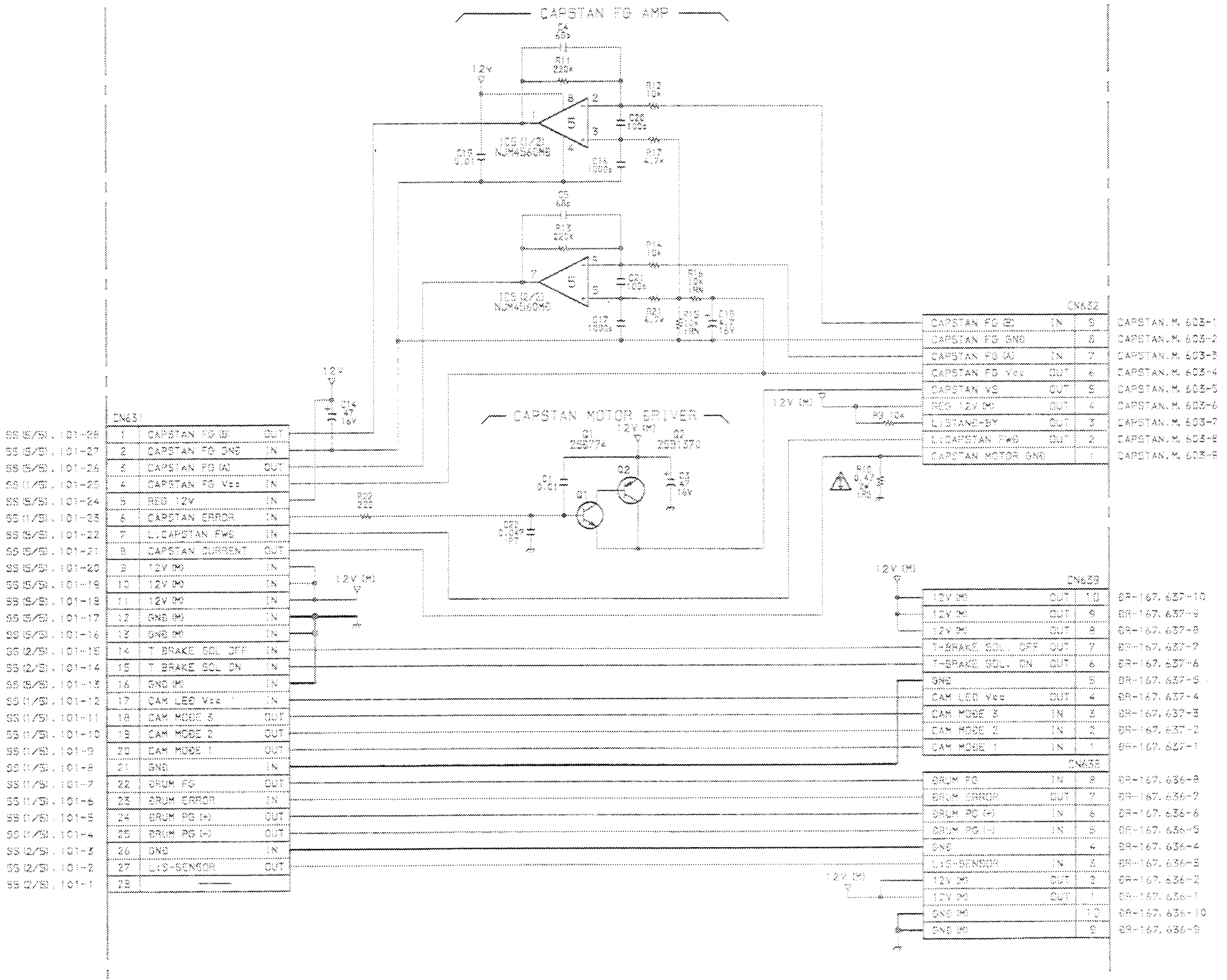

SONY
MADE IN JAPAN
DUS-544
1-644-095-12
CN1
C1

DUS-544 — A SIDE —
1-644-095-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


Ⓐ
SE-151
2
1
C
E
LOT NO.
S NO.

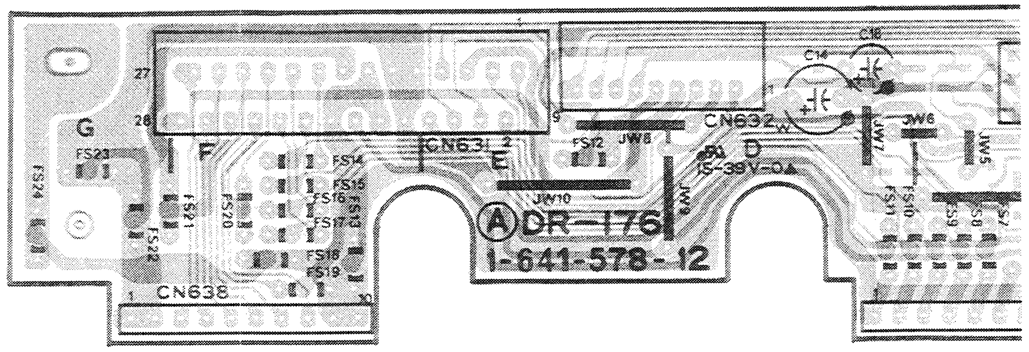
SE-151 — A SIDE —
1-637-245-13 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

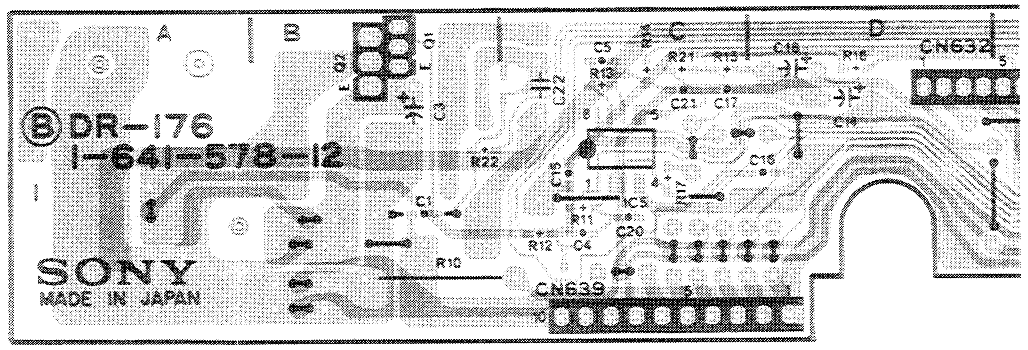
DR-176; CAPSTAN MOTOR DRIVER
CAPSTAN FG AMP


CAPSTAN FG AMP
C4 68p
R11 220k
12V
R12 10k
C20 100p
IC5 (1/2) NJM4560M8
C15 0.01
C16 1000p
R17 4.7k
C5 68p
R13 220k
R14 10k
C21 100p
IC5 (2/2) NJM4560M8
C17 1000p
R21 4.7k
R16 12k
R15 10k
C18 4.7 16V
CAPSTAN MOTOR DRIVER
12V (M)
Q1 2SB774
Q2 2SD1570
C1 0.01
C3 47 16V
R22 220
C22 0.047
R10 0.47
R9 10k
C14 47 16V
CN631
SS (5/5), 101-28 | 1 | CAPSTAN FG (B) | OUT
SS (5/5), 101-27 | 2 | CAPSTAN FG GND | IN
SS (5/5), 101-26 | 3 | CAPSTAN FG (A) | OUT
SS (1/5), 101-25 | 4 | CAPSTAN FG Vcc | IN
SS (5/5), 101-24 | 5 | REG 12V | IN
SS (1/5), 101-23 | 6 | CAPSTAN ERROR | IN
SS (5/5), 101-22 | 7 | L:CAPSTAN FWD | IN
SS (5/5), 101-21 | 8 | CAPSTAN CURRENT | OUT
SS (5/5), 101-20 | 9 | 12V (M) | IN
SS (5/5), 101-19 | 10 | 12V (M) | IN
SS (5/5), 101-18 | 11 | 12V (M) | IN
SS (5/5), 101-17 | 12 | GND (M) | IN
SS (5/5), 101-16 | 13 | GND (M) | IN
SS (2/5), 101-15 | 14 | T BRAKE SOL OFF | IN
SS (2/5), 101-14 | 15 | T BRAKE SOL ON | IN
SS (5/5), 101-13 | 16 | GND (M) | IN
SS (1/5), 101-12 | 17 | CAM LED Vcc | IN
SS (1/5), 101-11 | 18 | CAM MODE 3 | OUT
SS (1/5), 101-10 | 19 | CAM MODE 2 | OUT
SS (1/5), 101-9 | 20 | CAM MODE 1 | OUT
SS (1/5), 101-8 | 21 | GND | IN
SS (1/5), 101-7 | 22 | DRUM FG | OUT
SS (1/5), 101-6 | 23 | DRUM ERROR | IN
SS (1/5), 101-5 | 24 | DRUM PG (+) | OUT
SS (1/5), 101-4 | 25 | DRUM PG (-) | OUT
SS (2/5), 101-3 | 26 | GND | IN
SS (2/5), 101-2 | 27 | L:S-SENSOR | OUT
SS (2/5), 101-1 | 28 | ——
CN632
CAPSTAN FG (B) | IN | 9 | CAPSTAN.M, 603-1
CAPSTAN FG GND | 8 | CAPSTAN.M, 603-2
CAPSTAN FG (A) | IN | 7 | CAPSTAN.M, 603-3
CAPSTAN FG Vcc | OUT | 6 | CAPSTAN.M, 603-4
CAPSTAN VS | OUT | 5 | CAPSTAN.M, 603-5
REG 12V (M) | OUT | 4 | CAPSTAN.M, 603-6
L:STAND-BY | OUT | 3 | CAPSTAN.M, 603-7
L:CAPSTAN FWD | OUT | 2 | CAPSTAN.M, 603-8
CAPSTAN MOTOR GND | 1 | CAPSTAN.M, 603-9
CN639
12V (M) | OUT | 10 | DR-167, 637-10
12V (M) | OUT | 9 | DR-167, 637-9
12V (M) | OUT | 8 | DR-167, 637-8
T-BRAKE SOL. OFF | OUT | 7 | DR-167, 637-7
T-BRAKE SOL. ON | OUT | 6 | DR-167, 637-6
GND | 5 | DR-167, 637-5
CAM LED Vcc | OUT | 4 | DR-167, 637-4
CAM MODE 3 | IN | 3 | DR-167, 637-3
CAM MODE 2 | IN | 2 | DR-167, 637-2
CAM MODE 1 | IN | 1 | DR-167, 637-1
CN638
DRUM FG | IN | 8 | DR-167, 636-8
DRUM ERROR | OUT | 7 | DR-167, 636-7
DRUM PG (+) | IN | 6 | DR-167, 636-6
DRUM PG (-) | IN | 5 | DR-167, 636-5
GND | 4 | DR-167, 636-4
L:S-SENSOR | IN | 3 | DR-167, 636-3
12V (M) | OUT | 2 | DR-167, 636-2
12V (M) | OUT | 1 | DR-167, 636-1
GND (M) | 10 | DR-167, 636-10
GND (M) | 9 | DR-167, 636-9

DR-176

1-641-578-12 (1)
SVO-9500MDP


Ⓐ DR-176
1-641-578-12
CN638
CN631
CN632
G
F
E
D
FS23
FS24
JW8
JW10
C14
C18

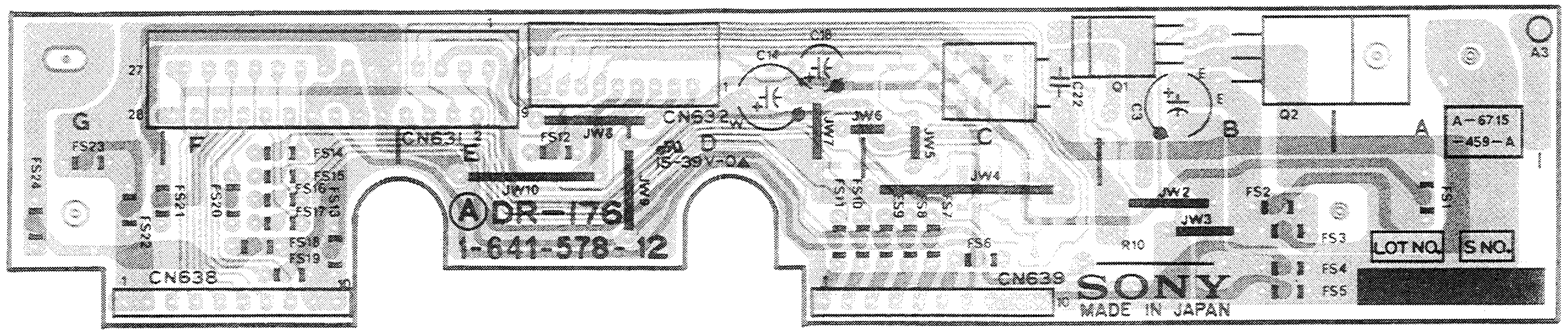

Ⓑ DR-176
1-641-578-12
SONY
MADE IN JAPAN
A
B
C
D
CN632
CN639
IC5
Q1
Q2
R10
R22
C1
C3
C22

NOTE:
The ⚠-marked components are critical to safety.
Replace only with same components as specified.

		CN632	
	IN	9	CAPSTAN.M. 603-1
		8	CAPSTAN.M. 603-2
	IN	7	CAPSTAN.M. 603-3
	OUT	6	CAPSTAN.M. 603-4
	OUT	5	CAPSTAN.M. 603-5
	OUT	4	CAPSTAN.M. 603-6
	OUT	3	CAPSTAN.M. 603-7
	OUT	2	CAPSTAN.M. 603-8
GND		1	CAPSTAN.M. 603-9
		CN639	
	OUT	10	DR-167. 637-10
	OUT	9	DR-167. 637-9
	OUT	8	DR-167. 637-8
FF	OUT	7	DR-167. 637-7
N	OUT	6	DR-167. 637-6
		5	DR-167. 637-5
	OUT	4	DR-167. 637-4
	IN	3	DR-167. 637-3
	IN	2	DR-167. 637-2
	IN	1	DR-167. 637-1
		CN638	
	IN	8	DR-167. 636-8
	OUT	7	DR-167. 636-7
	IN	6	DR-167. 636-6
	IN	5	DR-167. 636-5
		4	DR-167. 636-4
	IN	3	DR-167. 636-3
	OUT	2	DR-167. 636-2
	OUT	1	DR-167. 636-1
		10	DR-167. 636-10
		9	DR-167. 636-9

76

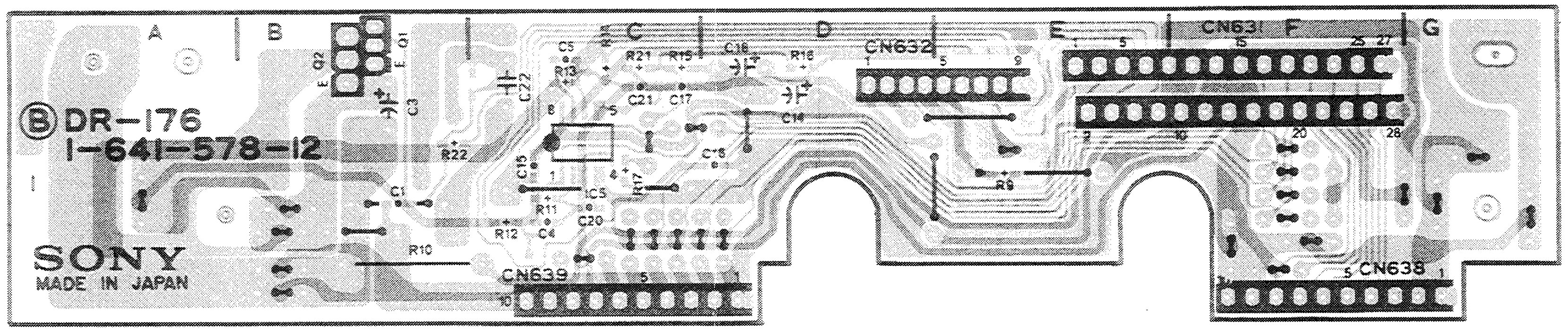
1


Ⓐ DR-176
1-641-578-12
CN631
CN632
CN638
CN639
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
FS1
FS2
FS3
FS4
FS5
FS6
FS7
FS8
FS9
FS10
FS11
FS12
FS14
FS15
FS16
FS17
FS18
FS19
FS20
FS21
FS22
FS23
FS24
C3
C14
C16
C22
Q1
Q2
R10
A3
A—6715
—459—A
LOT NO.
S NO.
SONY
MADE IN JAPAN
A
B
C
D
E
F
G

DR-176 — A SIDE —
1-641-578-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

2

3


Ⓑ DR-176
1-641-578-12
SONY
MADE IN JAPAN
CN631
CN632
CN638
CN639
IC5
Q1
Q2
C1
C3
C4
C5
C14
C15
C16
C17
C18
C20
C21
C22
R9
R10
R11
R12
R13
R14
R15
R16
R17
R21
R22
A
B
C
D
E
F
G

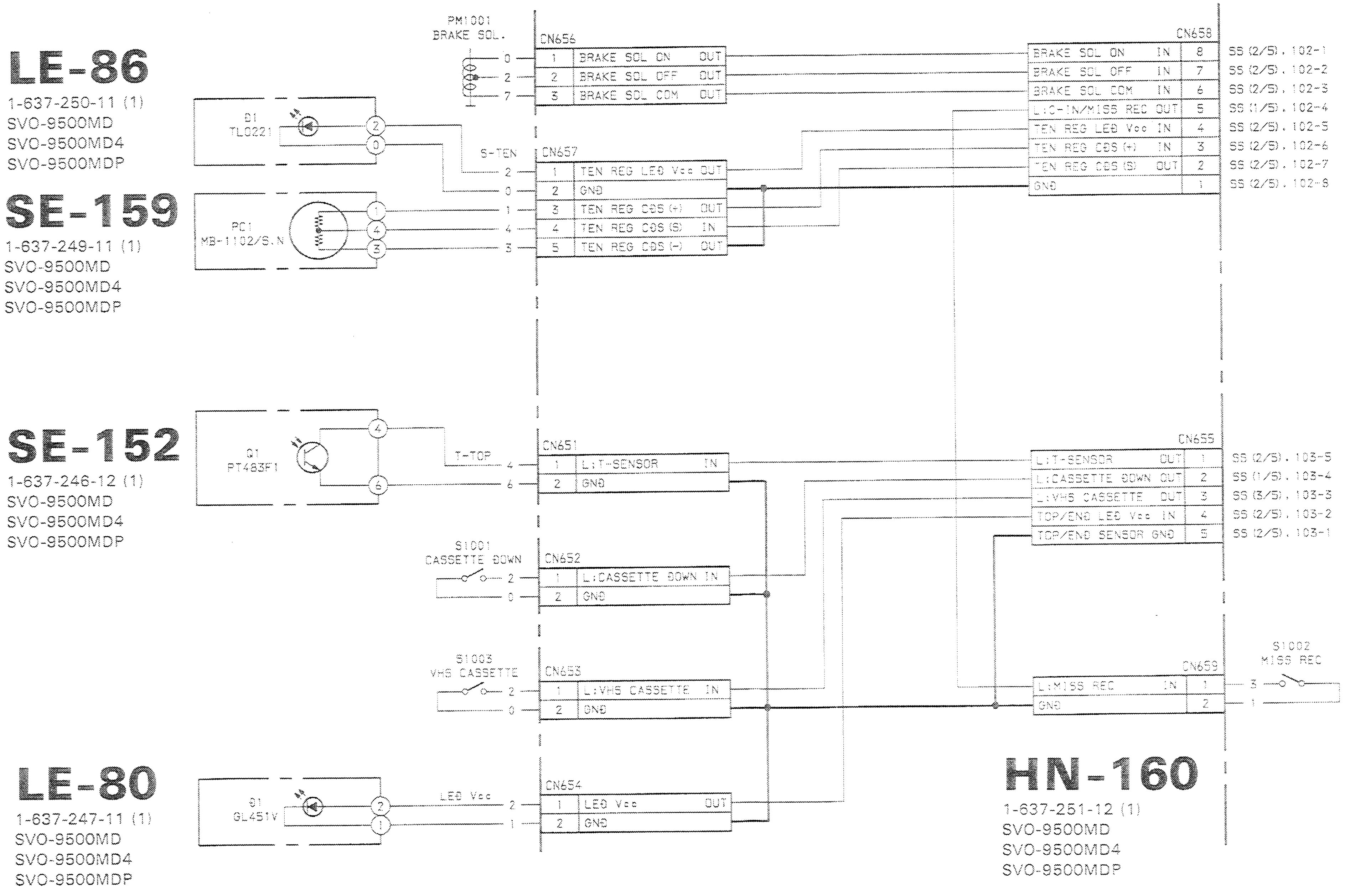
DR-176 — B SIDE —
1-641-578-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

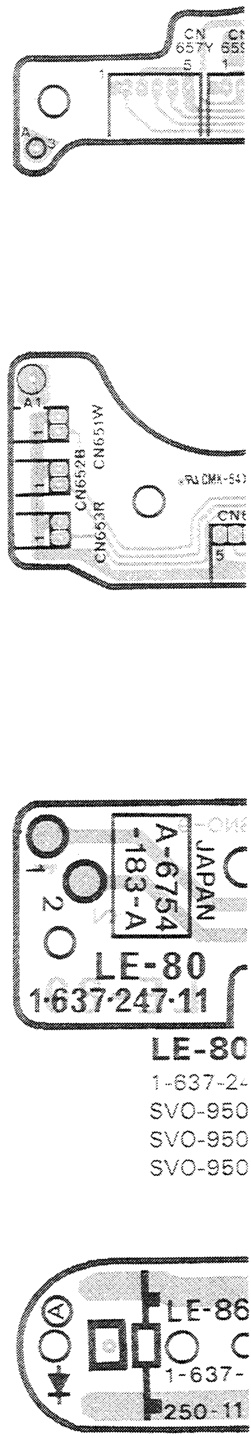
4

5

E F G H J K L

HN-160 ; CONNECTION BOARD
LE-80 ; TAPE TOP/END LED
LE-86 ; TENSION REGULATOR LED
SE-152 ; TAPE TOP SENSOR
SE-159 ; TENSION REGULATOR

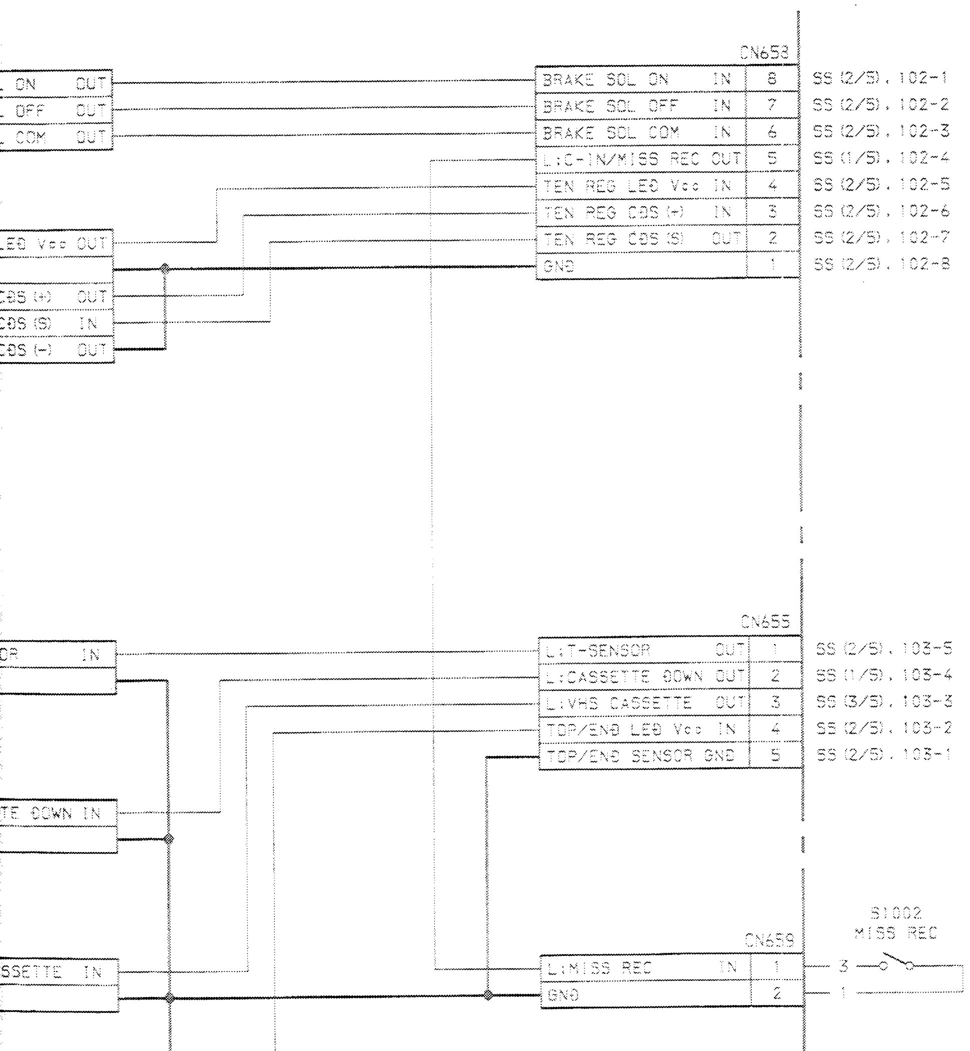

LE-86
1-637-250-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP
D1
TL0221
SE-159
1-637-249-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP
PC1
MB-1102/S.N
SE-152
1-637-246-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP
Q1
PT483F1
T-TOP
LE-80
1-637-247-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP
D1
GL451V
LED Vcc
PM1001
BRAKE SOL.
S-TEN
S1001
CASSETTE DOWN
S1003
VHS CASSETTE
CN656
1 BRAKE SOL ON OUT
2 BRAKE SOL OFF OUT
3 BRAKE SOL COM OUT
CN657
1 TEN REG LED Vcc OUT
2 GND
3 TEN REG CDS (+) OUT
4 TEN REG CDS (S) IN
5 TEN REG CDS (-) OUT
CN651
1 L:T-SENSOR IN
2 GND
CN652
1 L:CASSETTE DOWN IN
2 GND
CN653
1 L:VHS CASSETTE IN
2 GND
CN654
1 LED Vcc OUT
2 GND
CN658
BRAKE SOL ON IN 8 SS (2/5), 102-1
BRAKE SOL OFF IN 7 SS (2/5), 102-2
BRAKE SOL COM IN 6 SS (2/5), 102-3
L:C-IN/MISS REC OUT 5 SS (1/5), 102-4
TEN REG LED Vcc IN 4 SS (2/5), 102-5
TEN REG CDS (+) IN 3 SS (2/5), 102-6
TEN REG CDS (S) OUT 2 SS (2/5), 102-7
GND 1 SS (2/5), 102-8
CN655
L:T-SENSOR OUT 1 SS (2/5), 103-5
L:CASSETTE DOWN OUT 2 SS (1/5), 103-4
L:VHS CASSETTE OUT 3 SS (3/5), 103-3
TOP/END LED Vcc IN 4 SS (2/5), 103-2
TOP/END SENSOR GND 5 SS (2/5), 103-1
CN659
L:MISS REC IN 1
GND 2
S1002
MISS REC
HN-160
1-637-251-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


CN 657Y
CN652B
CN651W
CN653R
A-6754-183-A
JAPAN
LE-80
1-637-247-11
LE-86
1-637-
250-11

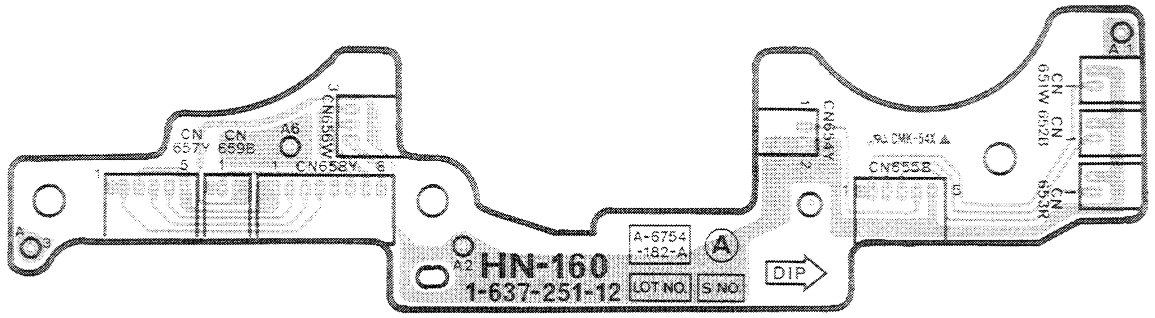
LE-80
1-637-2
SVO-950
SVO-950
SVO-950

LE-86 — A SID
1-637-250-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

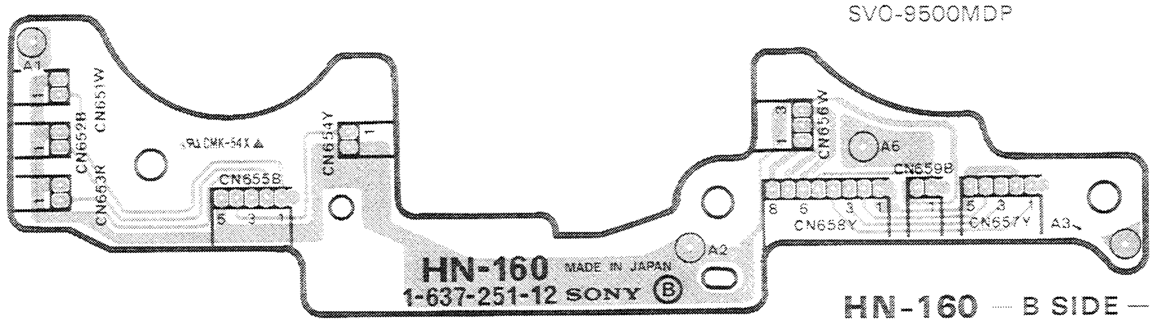
HN-160, LE-80, LE-86, SE-152, SE-159


CN653
BRAKE SOL ON IN 8 SS (2/5), 102-1
BRAKE SOL OFF IN 7 SS (2/5), 102-2
BRAKE SOL COM IN 6 SS (2/5), 102-3
L:C-IN/MISS REC OUT 5 SS (1/5), 102-4
TEN REG LED Vcc IN 4 SS (2/5), 102-5
TEN REG CDS (+) IN 3 SS (2/5), 102-6
TEN REG CDS (S) OUT 2 SS (2/5), 102-7
GND 1 SS (2/5), 102-8
L ON OUT
L OFF OUT
L COM OUT
LED Vcc OUT
CDS (+) OUT
CDS (S) IN
CDS (−) OUT
CN655
L:T-SENSOR OUT 1 SS (2/5), 103-5
L:CASSETTE DOWN OUT 2 SS (1/5), 103-4
L:VHS CASSETTE OUT 3 SS (3/5), 103-3
TOP/END LED Vcc IN 4 SS (2/5), 103-2
TOP/END SENSOR GND 5 SS (2/5), 103-1
OR IN
TE DOWN IN
SSETTE IN
OUT
CN659
L:MISS REC IN 1
GND 2
S1002
MISS REC
3
1

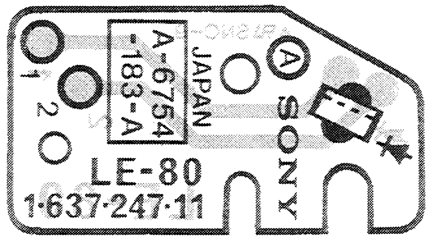
HN-160
1-637-251-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


CN 657Y
CN 659B
A6
CN656W
CN658Y
CN654Y
CN655B
CN 651W
CN 652B
CN 653R
A1
A2
A3
HN-160
1-637-251-12
A-6754 -182-A
Ⓐ
LOT NO.
S NO.
DIP

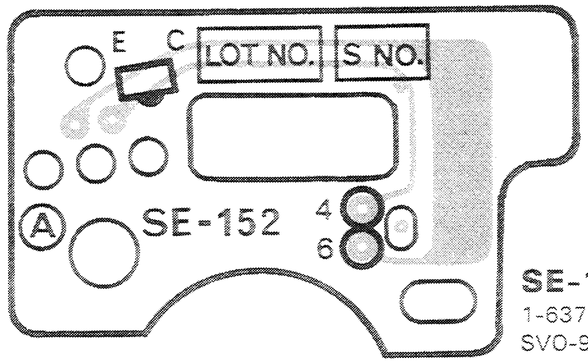
HN-160 — A SIDE —
1-637-251-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


A1
CN652B
CN651W
CN653R
CN655B
CN654Y
CN656W
A6
CN659B
CN658Y
CN657Y
A2
A3
HN-160
MADE IN JAPAN
1-637-251-12 SONY Ⓑ

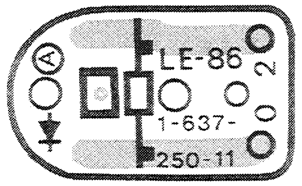
HN-160 — B SIDE —
1-637-251-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


1
2
A-6754 -183-A
JAPAN
Ⓐ
SONY
LE-80
1-637-247-11

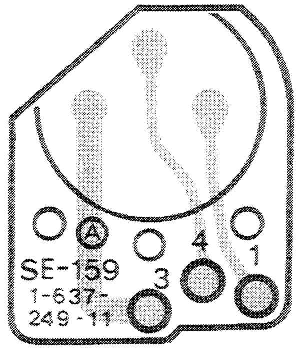
LE-80 — A SIDE —
1-637-247-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


E
C
LOT NO.
S NO.
Ⓐ
SE-152
4
6

SE-152 — A SIDE —
1-637-246-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

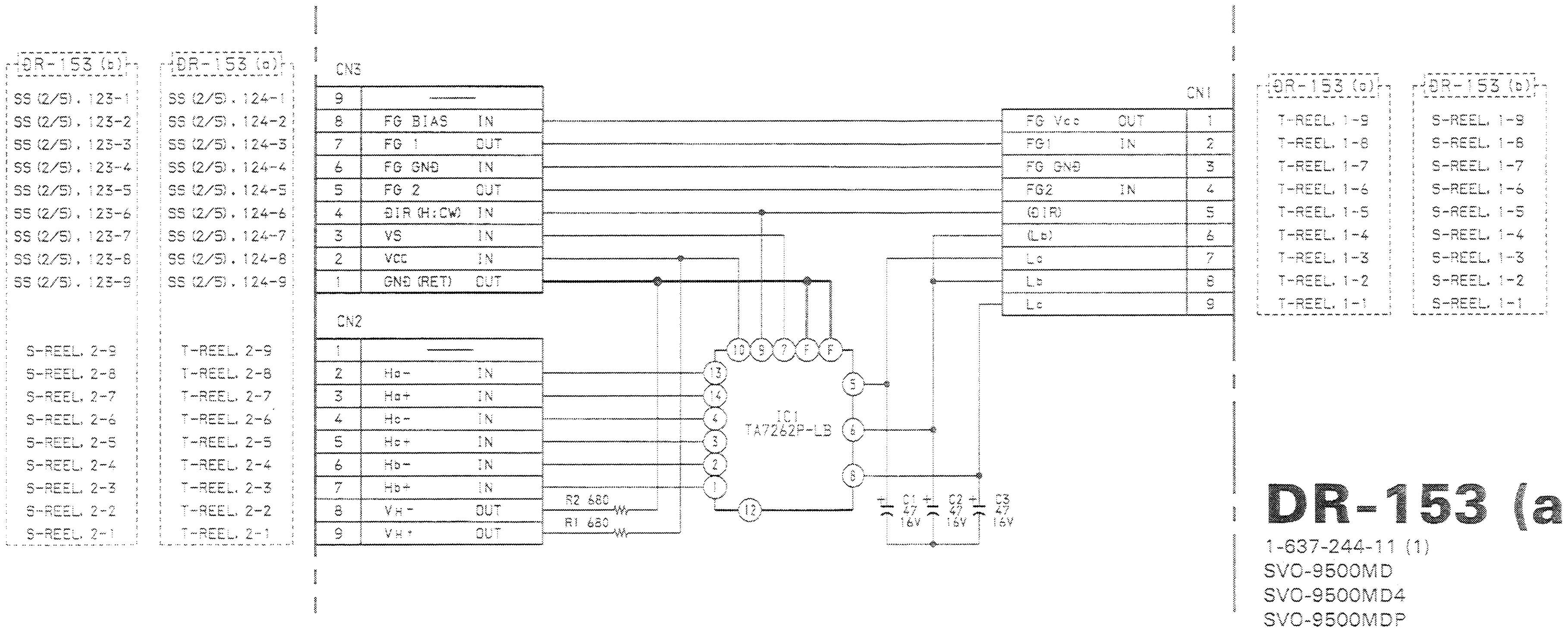

Ⓐ
LE-86
1-637-
250-11
2
0

LE-86 — A SIDE —
1-637-250-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


Ⓐ
SE-159
1-637-
249-11
3
4
1

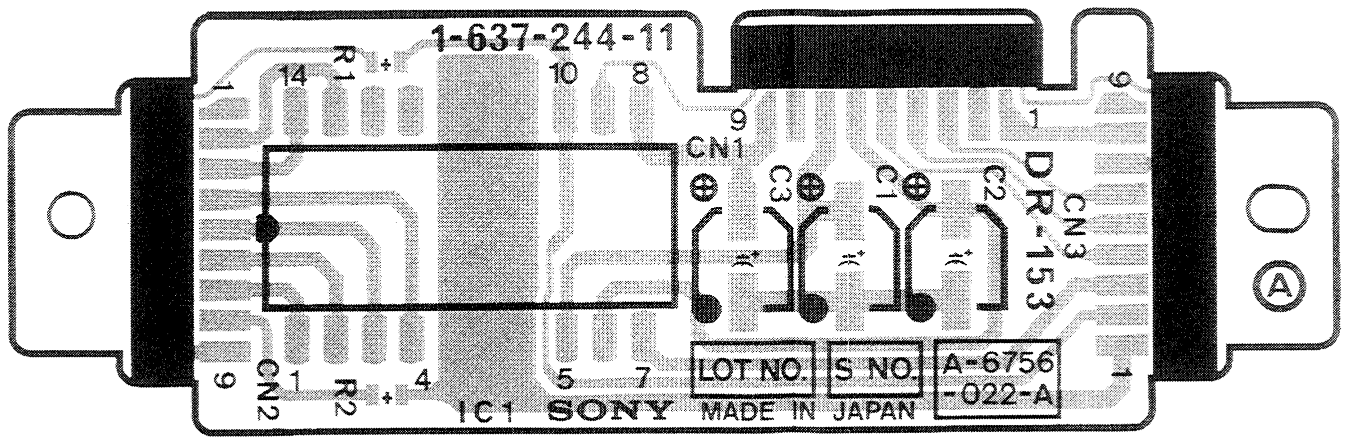
SE-159 — A SIDE —
1-637-249-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

DR-153 (a) ; T REEL DRIVER
DR-153 (b) ; S REEL DRIVER


DR-153 (b)
SS (2/5) . 123-1
SS (2/5) . 123-2
SS (2/5) . 123-3
SS (2/5) . 123-4
SS (2/5) . 123-5
SS (2/5) . 123-6
SS (2/5) . 123-7
SS (2/5) . 123-8
SS (2/5) . 123-9
S-REEL. 2-9
S-REEL. 2-8
S-REEL. 2-7
S-REEL. 2-6
S-REEL. 2-5
S-REEL. 2-4
S-REEL. 2-3
S-REEL. 2-2
S-REEL. 2-1
DR-153 (a)
SS (2/5) . 124-1
SS (2/5) . 124-2
SS (2/5) . 124-3
SS (2/5) . 124-4
SS (2/5) . 124-5
SS (2/5) . 124-6
SS (2/5) . 124-7
SS (2/5) . 124-8
SS (2/5) . 124-9
T-REEL. 2-9
T-REEL. 2-8
T-REEL. 2-7
T-REEL. 2-6
T-REEL. 2-5
T-REEL. 2-4
T-REEL. 2-3
T-REEL. 2-2
T-REEL. 2-1
CN3
9
8 FG BIAS IN
7 FG 1 OUT
6 FG GND IN
5 FG 2 OUT
4 DIR (H:CW) IN
3 VS IN
2 VCC IN
1 GND (RET) OUT
CN2
1
2 Ha- IN
3 Ha+ IN
4 Hc- IN
5 Hc+ IN
6 Hb- IN
7 Hb+ IN
8 VH- OUT
9 VH+ OUT
R2 680
R1 680
IC1
TA7262P-LB
10 9 7 F F
13 14 4 3 2 1
5 6 8
12
C1 47 16V
C2 47 16V
C3 47 16V
CN1
FG Vcc OUT 1
FG1 IN 2
FG GND 3
FG2 IN 4
(DIR) 5
(Lb) 6
La 7
Lb 8
Lc 9
DR-153 (a)
T-REEL. 1-9
T-REEL. 1-8
T-REEL. 1-7
T-REEL. 1-6
T-REEL. 1-5
T-REEL. 1-4
T-REEL. 1-3
T-REEL. 1-2
T-REEL. 1-1
DR-153 (b)
S-REEL. 1-9
S-REEL. 1-8
S-REEL. 1-7
S-REEL. 1-6
S-REEL. 1-5
S-REEL. 1-4
S-REEL. 1-3
S-REEL. 1-2
S-REEL. 1-1

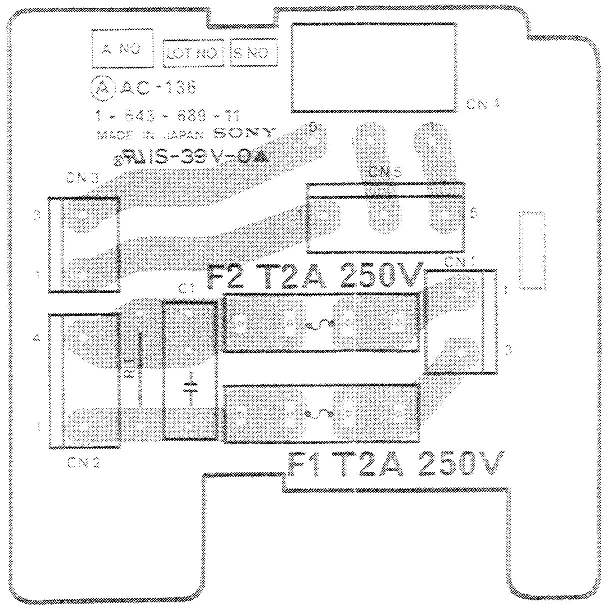
DR-153 (a), (b)

1-637-244-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


1-637-244-11
1
14
R1
10
8
9
CN1
1
9
C3
C1
C2
DR-153
CN3
A
9
CN2
1
R2
4
IC1
5
7
SONY
LOT NO.
S NO.
A-6756
-022-A
MADE IN JAPAN
1

DR-153 (a), (b) — A SIDE —
1-637-244-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

AC-136 ; AC INPUT
DC-53A ; AC-DC POWER REGULATOR

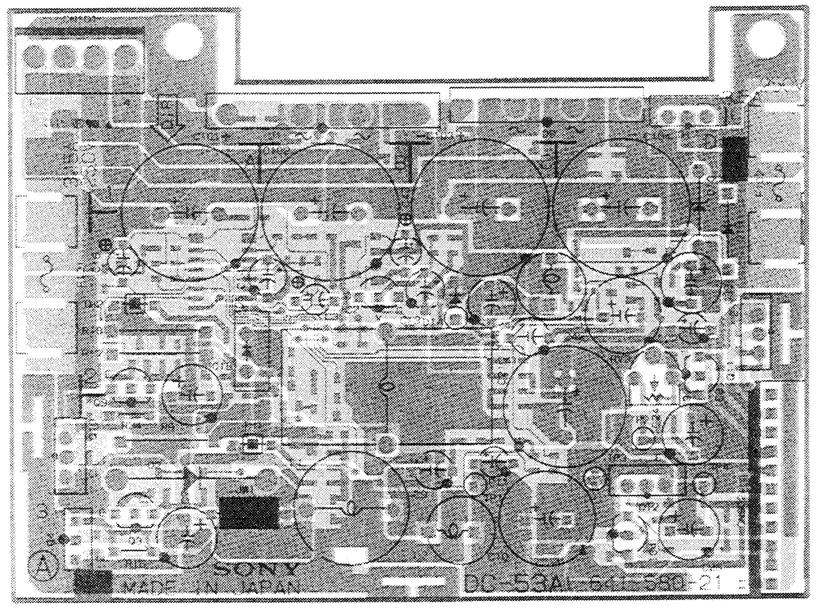

A NO
LOT NO
S.NO
Ⓐ AC-136
1-643-689-11
MADE IN JAPAN SONY
CN3
CN4
CN5
CN1
CN2
C1
R1
F2 T2A 250V
F1 T2A 250V

AC-136 — A SIDE —
1-643-689-11 (1)
SVO-9500MDP

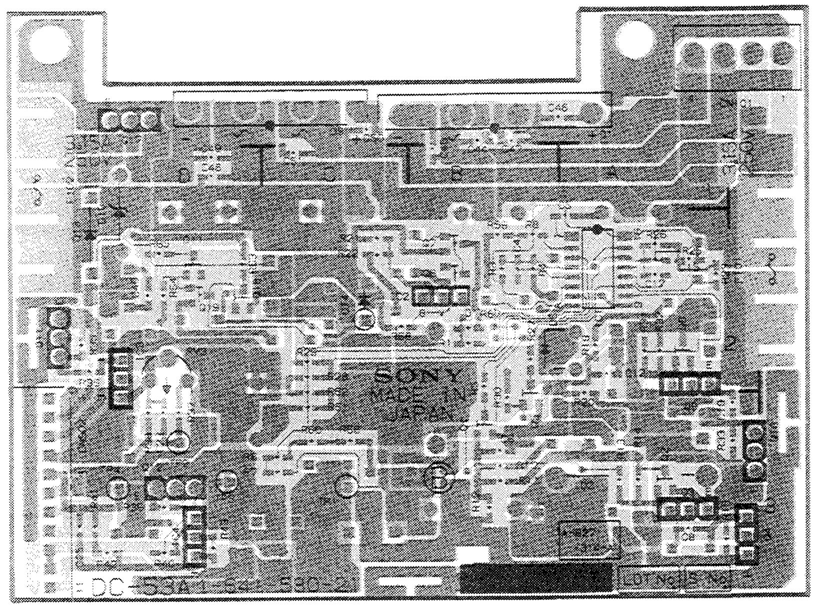
DC-53A (1-641-580-21)

CN101	A-1
CN902	D-3
D1	B-1
D2	A-3
D6	A-2
D9	C-1
D10	D-1
D11	D-2 *
D13	D-2
D14	C-2
F101	A-2
F102	D-1
IC1	A-2 *
IC2	B-2
IC3	D-2
IC4	D-3
L1	B-3
L2	C-3
L3	B-2
L4	D-2
Q1	B-3 *
Q2	A-2 *
Q3	A-3
Q4	A-3
Q5	B-3 *
Q6	B-2 *
Q7	B-2 *
Q8	A-2 *
Q9	A-3
Q10	A-3
Q11	D-2
Q12	D-3
Q17	D-1
Q18	D-2 *
Q19	D-2 *
RV3	D-2
TH1	A-3
TH2	A-2
TP1	C-3
TP2	D-2
TP3	D-2
TP4	D-2

* mark ; B SIDE mount

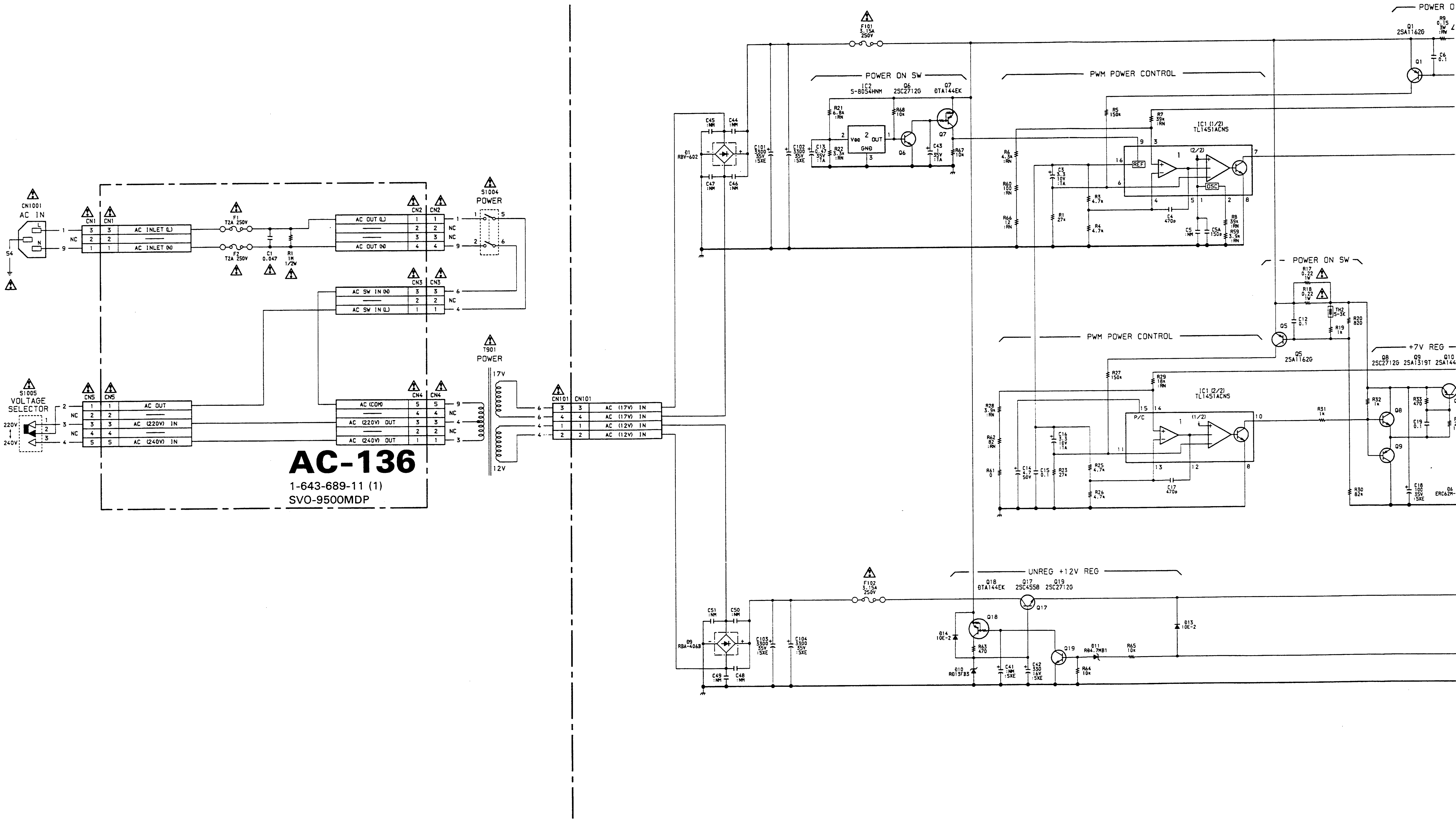

SONY
MADE IN JAPAN
DC-53A 1-641-580-21

DC-53A — A SIDE —
1-641-580-21 (1)
SVO-9500MDP

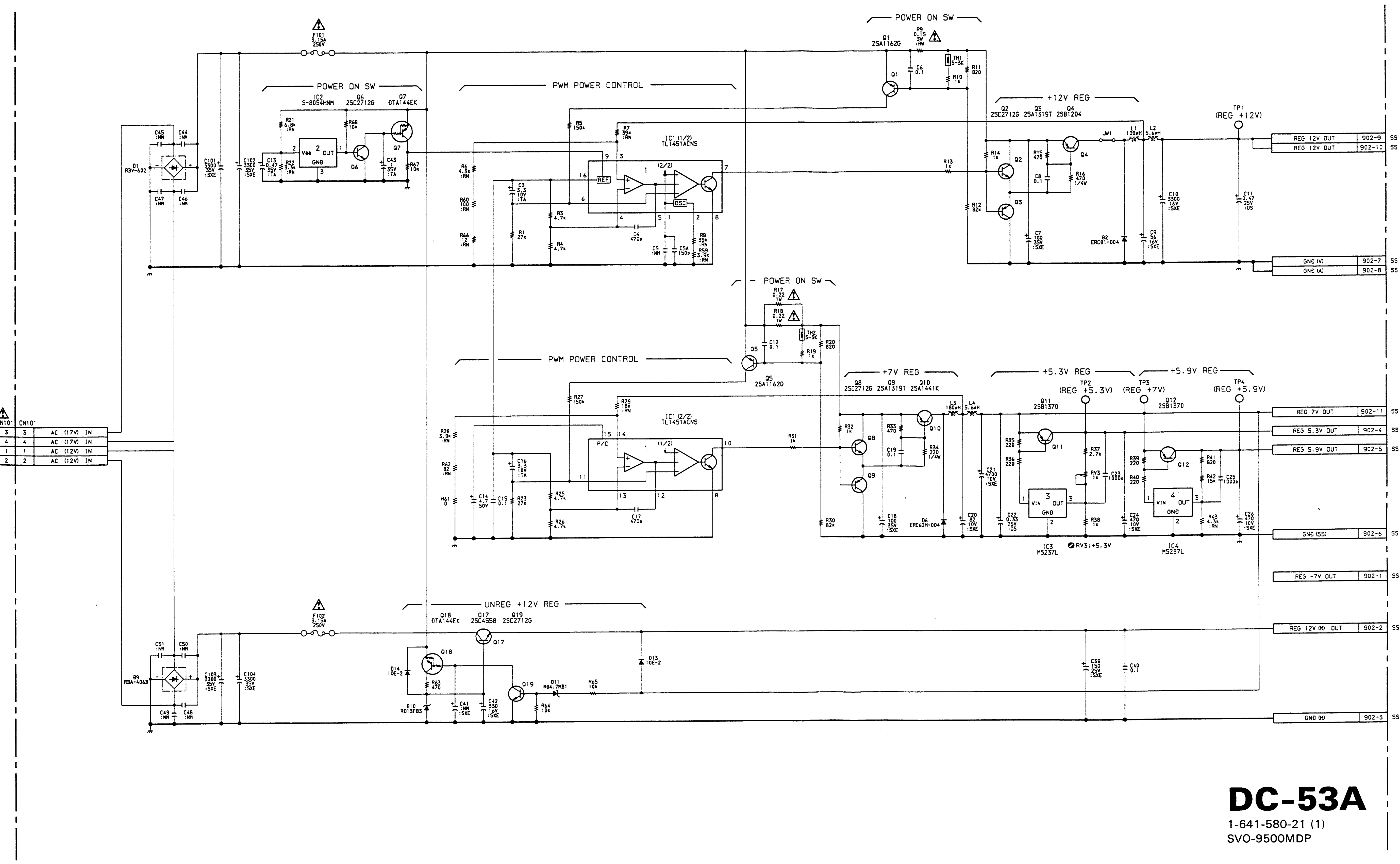

SONY
MADE IN JAPAN
DC-53A 1-641-580-21
LOT No
S.No

DC-53A — B SIDE —
1-641-580-21 (1)
SVO-9500MDP

AC-136 ; AC INPUT
DC-53A ; AC-DC POWER REGULATOR


CN1001
AC IN
S4
S1005
VOLTAGE SELECTOR
220V
240V
CN1
CN5
AC INLET (L)
AC INLET (N)
AC OUT
AC (220V) IN
AC (240V) IN
F1 T2A 250V
F2 T2A 250V
C1 0.047
R1 1M 1/2W
CN2
AC OUT (L)
AC OUT (N)
CN3
AC SW IN (N)
AC SW IN (L)
CN4
AC (COM)
AC (220V) OUT
AC (240V) OUT
S1004 POWER
T901 POWER
17V
12V
NC
AC-136
1-643-689-11 (1)
SVO-9500MDP
CN101
AC (17V) IN
AC (12V) IN
D1 RBV-602
D9 RBA-406B
F101 3.15A 250V
F102 3.15A 250V
C101 3300 35V :SXE
C102 3300 35V :SXE
C103 3300 35V :SXE
C104 3300 35V :SXE
POWER ON SW
IC2 S-8054HNM
Q6 2SC2712G
Q7 DTA144EK
PWM POWER CONTROL
IC1 (1/2) TL1451ACNS
IC1 (2/2) TL1451ACNS
REF
OSC
P/C
POWER ON SW
Q5 2SA1162G
Q1 2SA1162G
POWER O
+7V REG
Q8 2SC2712G
Q9 2SA1319T
Q10 2SA144
UNREG +12V REG
Q18 DTA144EK
Q17 2SC4558
Q19 2SC2712G
D14 10E-2
D13 10E-2
D10 RD13FB3
D11 RD4.7MB1
D6 ERC62M

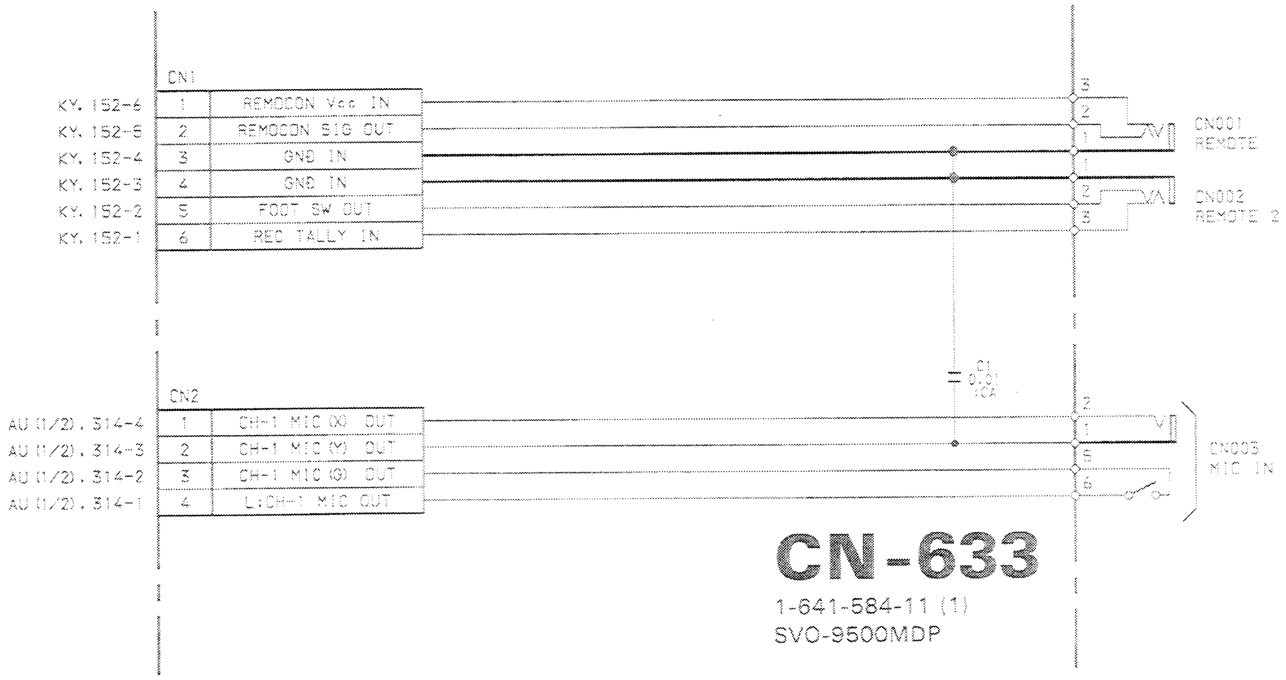
NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.


POWER ON SW
PWM POWER CONTROL
POWER ON SW
+12V REG
POWER ON SW
PWM POWER CONTROL
+7V REG
+5.3V REG
+5.9V REG
UNREG +12V REG
F101 3.15A 250V
F102 3.15A 250V
IC2 S-8054HNM
Q6 2SC2712G
Q7 DTA144EK
IC1 (1/2) TL1451ACNS
IC1 (2/2) TL1451ACNS
Q1 2SA1162G
Q2 2SC2712G
Q3 2SA1319T
Q4 2SB1204
Q5 2SA1162G
Q8 2SC2712G
Q9 2SA1319T
Q10 2SA1441K
Q11 2SB1370
Q12 2SB1370
Q18 DTA144EK
Q17 2SC4558
Q19 2SC2712G
IC3 M5237L
IC4 M5237L
RV3:+5.3V
TP1 (REG +12V)
TP2 (REG +5.3V)
TP3 (REG +7V)
TP4 (REG +5.9V)
D1 RBV-602
D9 RBA-406B
CN101
AC (17V) IN
AC (17V) IN
AC (12V) IN
AC (12V) IN
REG 12V OUT 902-9 SS (5/5). 100-3
REG 12V OUT 902-10 SS (5/5). 100-2
GND (V) 902-7 SS (5/5). 100-5
GND (A) 902-8 SS (5/5). 100-4
REG 7V OUT 902-11 SS (5/5). 100-1
REG 5.3V OUT 902-4 SS (5/5). 100-8
REG 5.9V OUT 902-5 SS (5/5). 100-7
GND (SS) 902-6 SS (5/5). 100-6
REG -7V OUT 902-1 SS (5/5). 100-11
REG 12V (M) OUT 902-2 SS (5/5). 100-10
GND (M) 902-3 SS (5/5). 100-9
1
2
3
4
5

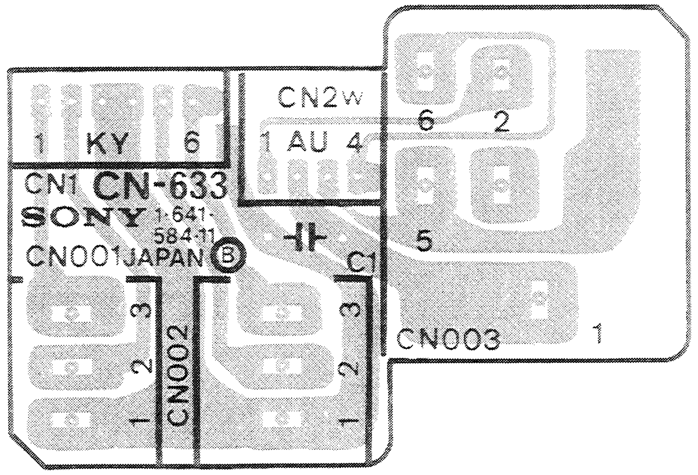
DC-53A

1-641-580-21 (1)
SVO-9500MDP

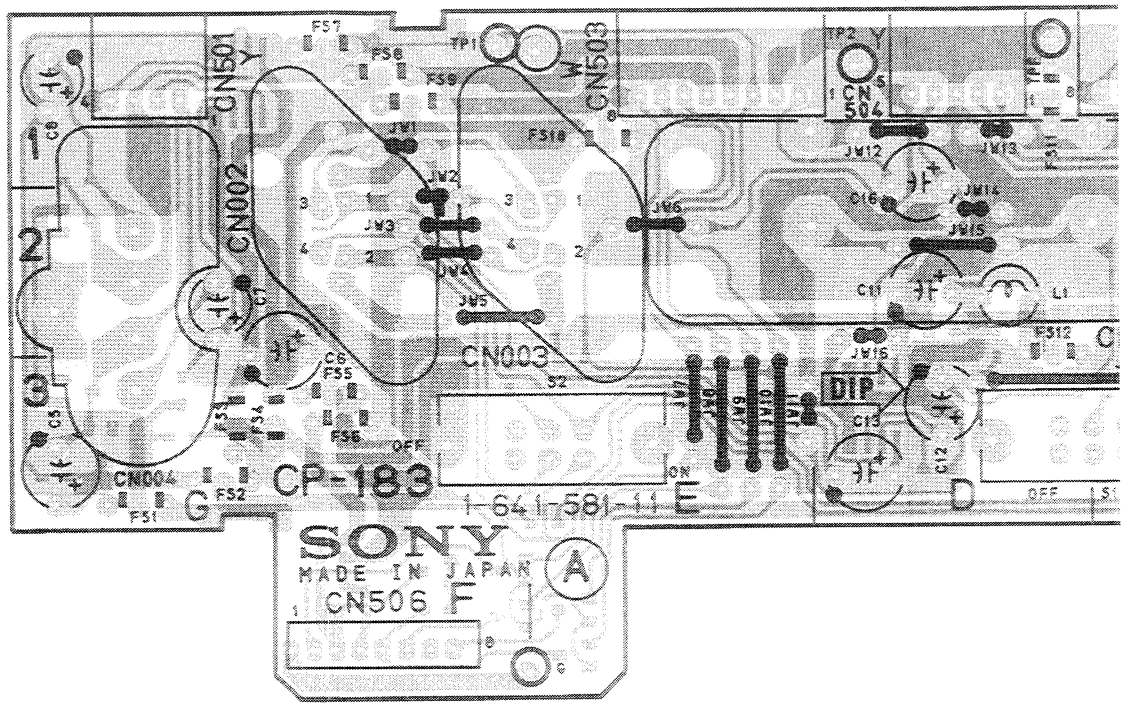
CN-633 ; CONNECTION of FRONT CONNECTOR
CP-183 ; CONNECTION of REAR CONNECTOR
DUS-442 ; INDICATE CONNECTOR

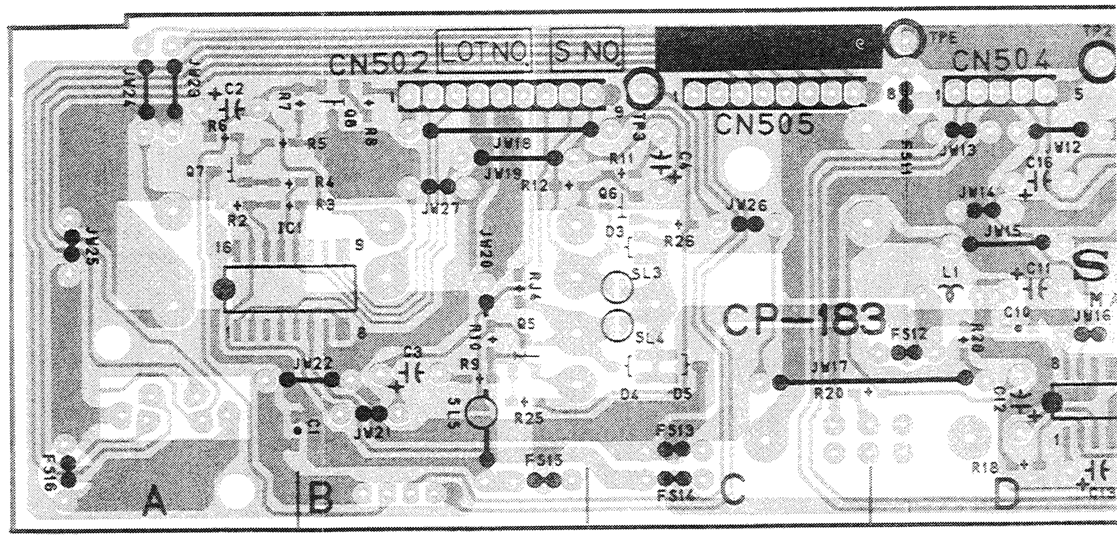

CN1
KY. 152-6
KY. 152-5
KY. 152-4
KY. 152-3
KY. 152-2
KY. 152-1
1 REMOCON Vcc IN
2 REMOCON SIG OUT
3 GND IN
4 GND IN
5 FOOT SW OUT
6 REC TALLY IN
CN001
REMOTE
CN002
REMOTE 2
C1
0.01
10A
CN2
AU (1/2). 314-4
AU (1/2). 314-3
AU (1/2). 314-2
AU (1/2). 314-1
1 CH-1 MIC (X) OUT
2 CH-1 MIC (Y) OUT
3 CH-1 MIC (G) OUT
4 L:CH-1 MIC OUT
CN003
MIC IN

CN-633
1-641-584-11 (1)
SVO-9500MDP


CN2W
1 AU 4
6
2
1 KY 6
CN1 CN-633
SONY 1-641-584-11
CN001 JAPAN B
C1
5
CN002
CN003
1
2
3

CN-633 B SIDE
1-641-584-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


CN501
CN503
CN504
CN002
CN003
CN004
CP-183
1-641-581-11 E
SONY
MADE IN JAPAN A
CN506 F
DIP
G
D

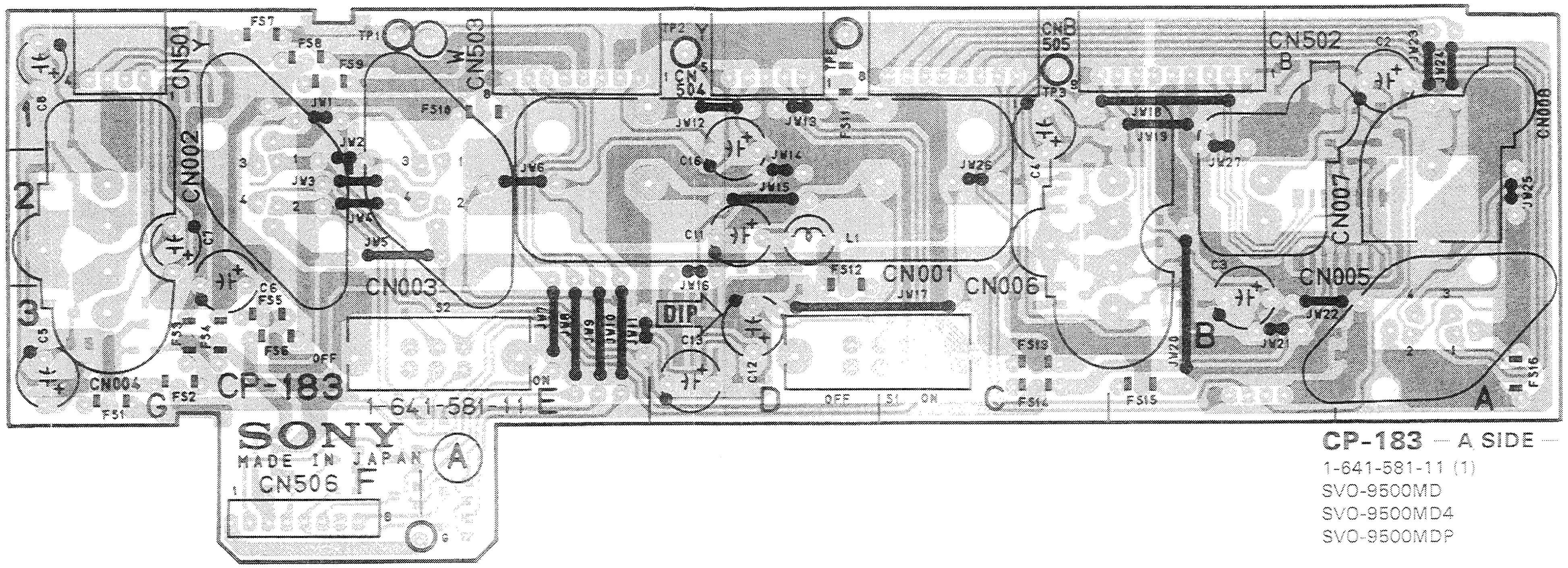

CN502
LOT NO.
S NO.
CN504
CN505
CP-183
IC1
A
B
C
D

CN-633, CP-183, DUS-442

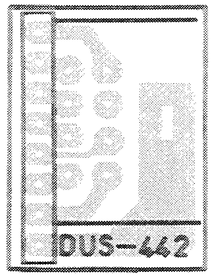
CN001
REMOTE

CN002
REMOTE 2

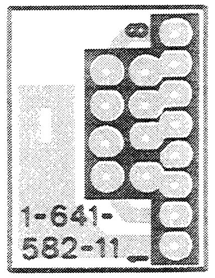
CN003
MIC IN


CN501
CN503
CN504
CN505
CN502
CN008
CN002
CN007
CN003
CN001
CN006
CN005
CN004
CP-183
1-641-581-11
SONY
MADE IN JAPAN
CN506
A
B
C
D
E
F
G
DIP
OFF
ON
S1
S2

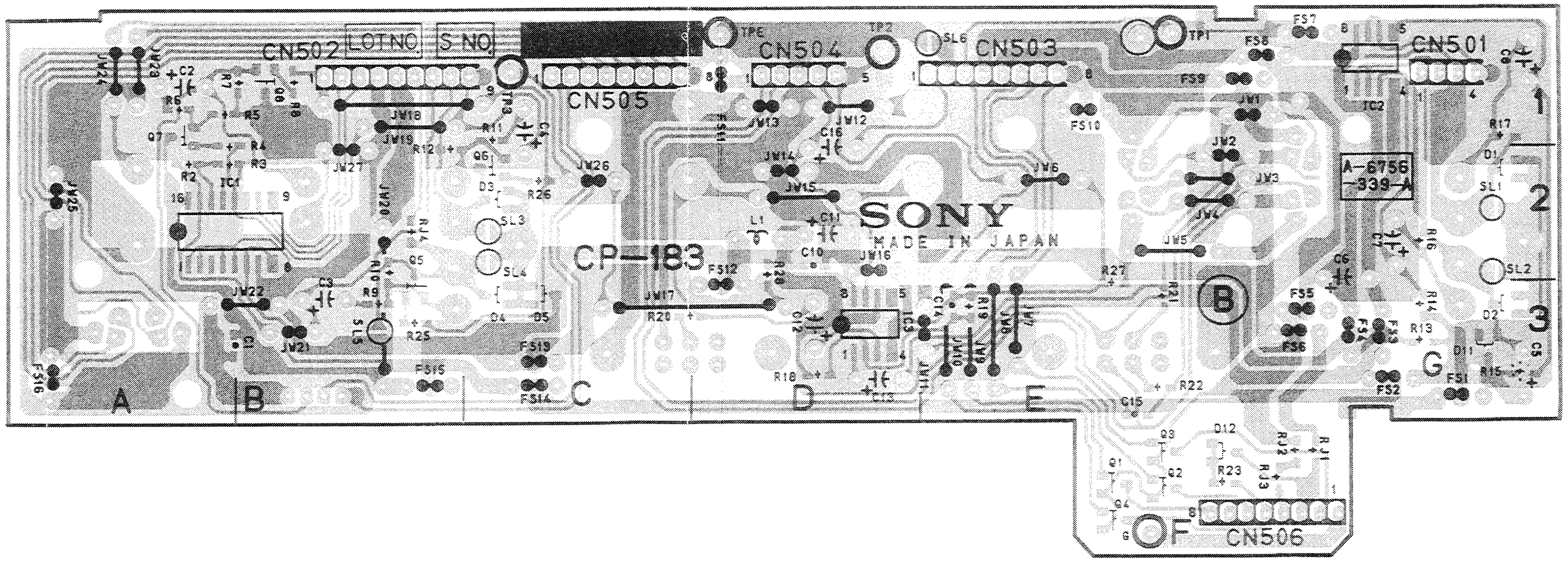
CP-183 — A SIDE —
1-641-581-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP



DUS-442 — A SIDE —
1-641-582-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


1-641-
582-11
8
1

DUS-442 — B SIDE —
1-641-582-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

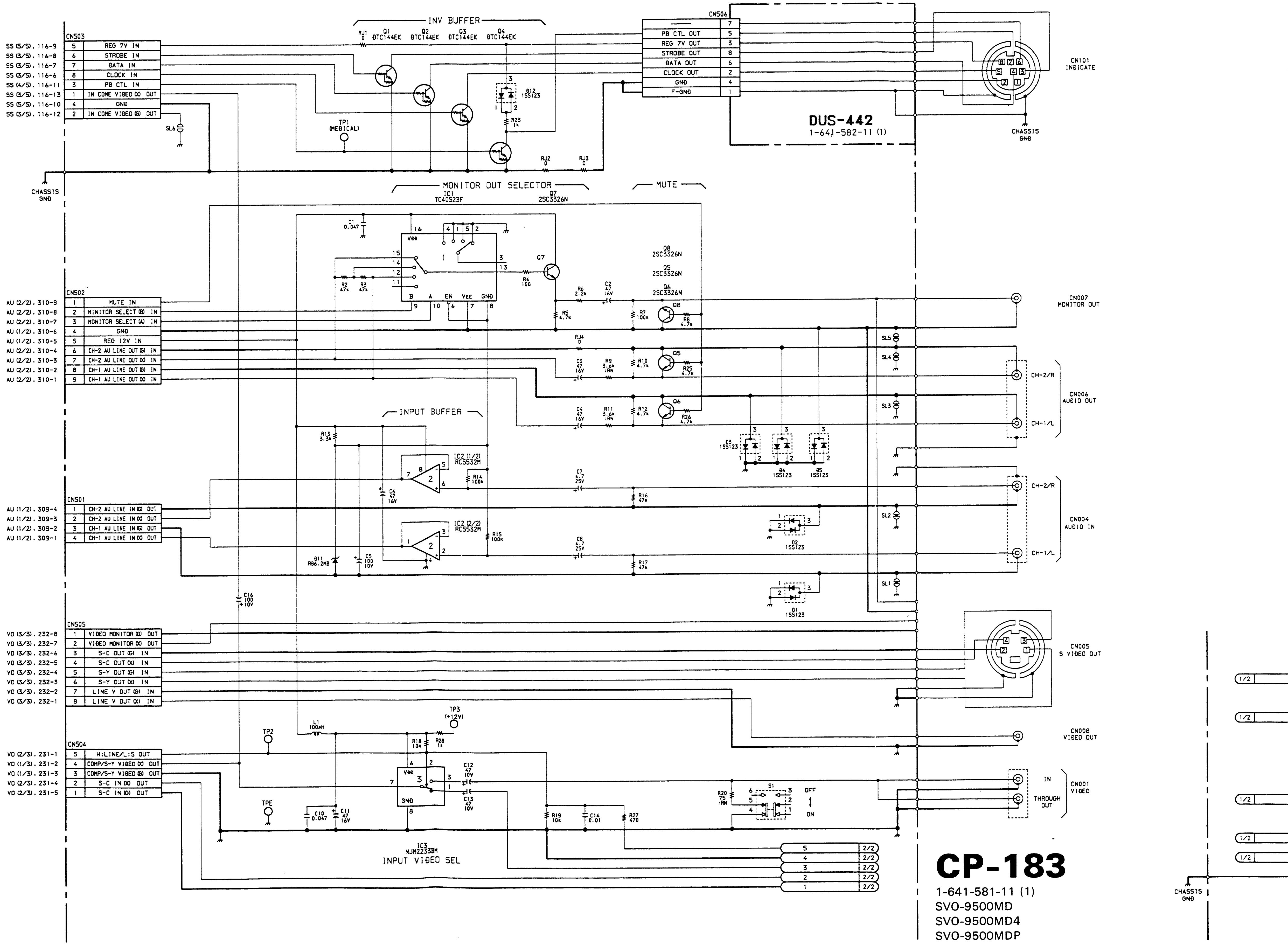

CN502
LOT NO
S NO
CN505
CN504
CN503
CN501
CP-183
SONY
MADE IN JAPAN
A-6756
-339-A
IC1
IC2
IC3
CN506
A
B
C
D
E
F
G
1
2
3

CP-183 — B SIDE —
1-641-581-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP

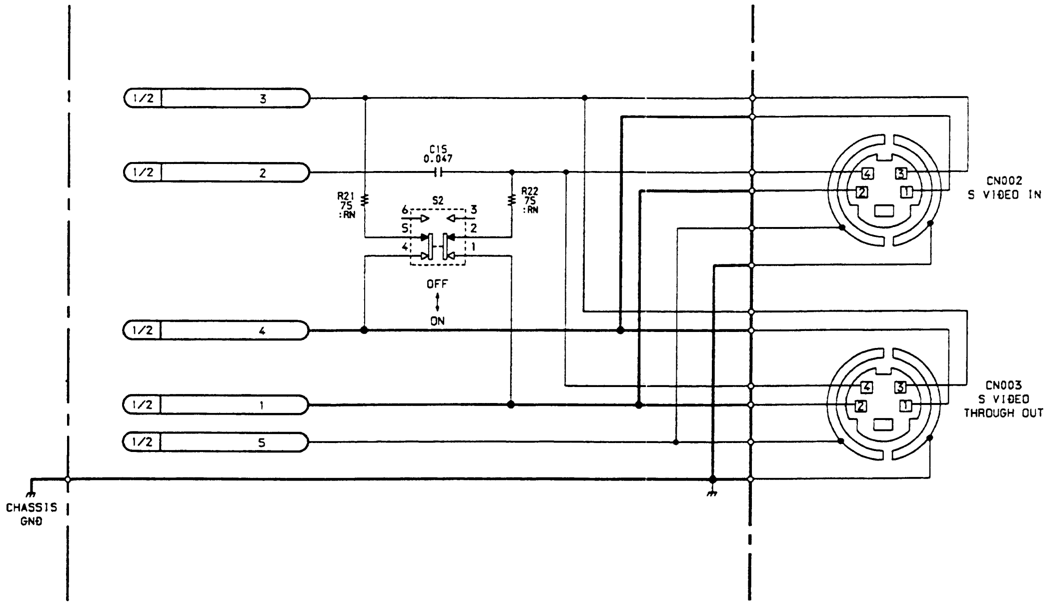
13-56

CP-183; CONNECTION of REAR CONNECTOR

DUS-442; INDICATE CONNECTOR

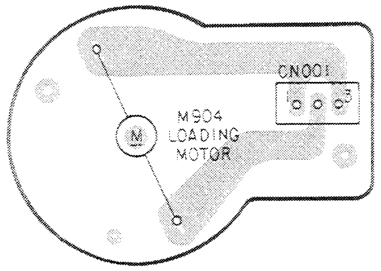

CN503
SS (5/5). 116-9 | 5 | REG 7V IN
SS (3/5). 116-8 | 6 | STROBE IN
SS (3/5). 116-7 | 7 | DATA IN
SS (3/5). 116-6 | 8 | CLOCK IN
SS (4/5). 116-11 | 3 | PB CTL IN
SS (3/5). 116-13 | 1 | IN COME VIDEO (X) OUT
SS (5/5). 116-10 | 4 | GND
SS (3/5). 116-12 | 2 | IN COME VIDEO (G) OUT
SL6
CHASSIS GND
INV BUFFER
RJ1 0
Q1 DTC144EK
Q2 DTC144EK
Q3 DTC144EK
Q4 DTC144EK
D12 1SS123
R23 1k
TP1 (MEDICAL)
RJ2 0
RJ3 0
CN506
7
PB CTL OUT | 5
REG 7V OUT | 3
STROBE OUT | 8
DATA OUT | 6
CLOCK OUT | 2
GND | 4
F-GND | 1
DUS-442
1-641-582-11 (1)
CN101 INDICATE
CHASSIS GND
MONITOR OUT SELECTOR
IC1 TC4052BF
Q7 2SC3326N
MUTE
C1 0.047
VDD
A
EN
VEE
GND
R2 47k
R3 47k
R4 100
Q8 2SC3326N
Q5 2SC3326N
Q6 2SC3326N
R6 2.2k
C2 47 16V
R5 4.7k
R7 100k
R8 4.7k
RJ4 0
C3 47 16V
R9 3.6k :RN
R10 4.7k
R25 4.7k
C4 47 16V
R11 3.6k :RN
R12 4.7k
R26 4.7k
CN502
AU (2/2). 310-9 | 1 | MUTE IN
AU (2/2). 310-8 | 2 | MONITOR SELECT (B) IN
AU (2/2). 310-7 | 3 | MONITOR SELECT (A) IN
AU (1/2). 310-6 | 4 | GND
AU (1/2). 310-5 | 5 | REG 12V IN
AU (2/2). 310-4 | 6 | CH-2 AU LINE OUT (G) IN
AU (2/2). 310-3 | 7 | CH-2 AU LINE OUT (X) IN
AU (2/2). 310-2 | 8 | CH-1 AU LINE OUT (G) IN
AU (2/2). 310-1 | 9 | CH-1 AU LINE OUT (X) IN
SL5
SL4
SL3
CN007 MONITOR OUT
CH-2/R
CH-1/L
CN006 AUDIO OUT
D3 1SS123
D4 1SS123
D5 1SS123
INPUT BUFFER
R13 3.3k
IC2 (1/2) RC5532M
R14 100k
C6 47 16V
IC2 (2/2) RC5532M
R15 100k
D11 RD6.2MB
C5 100 10V
C7 4.7 25V
R16 47k
C8 4.7 25V
R17 47k
CN501
AU (1/2). 309-4 | 1 | CH-2 AU LINE IN (G) OUT
AU (1/2). 309-3 | 2 | CH-2 AU LINE IN (X) OUT
AU (1/2). 309-2 | 3 | CH-1 AU LINE IN (G) OUT
AU (1/2). 309-1 | 4 | CH-1 AU LINE IN (X) OUT
SL2
SL1
D2 1SS123
D1 1SS123
CH-2/R
CH-1/L
CN004 AUDIO IN
C16 100 10V
CN505
VO (3/3). 232-8 | 1 | VIDEO MONITOR (G) OUT
VO (3/3). 232-7 | 2 | VIDEO MONITOR (X) OUT
VO (3/3). 232-6 | 3 | S-C OUT (G) IN
VO (3/3). 232-5 | 4 | S-C OUT (X) IN
VO (3/3). 232-4 | 5 | S-Y OUT (G) IN
VO (3/3). 232-3 | 6 | S-Y OUT (X) IN
VO (3/3). 232-2 | 7 | LINE V OUT (G) IN
VO (3/3). 232-1 | 8 | LINE V OUT (X) IN
CN005 S VIDEO OUT
CN008 VIDEO OUT
TP3 (+12V)
L1 100uH
TP2
R18 10k
R28 1k
CN504
VO (2/3). 231-1 | 5 | H:LINE/L:S OUT
VO (1/3). 231-2 | 4 | COMP/S-Y VIDEO (X) OUT
VO (1/3). 231-3 | 3 | COMP/S-Y VIDEO (G) OUT
VO (2/3). 231-4 | 2 | S-C IN (X) OUT
VO (2/3). 231-5 | 1 | S-C IN (G) OUT
C12 47 10V
C13 47 10V
TPE
C10 0.047
C11 47 16V
IC3 NJM2233BM
INPUT VIDEO SEL
R19 10k
C14 0.01
R27 470
R20 75 :RN
S1
OFF
ON
IN
THROUGH OUT
CN001 VIDEO
5 2/2
4 2/2
3 2/2
2 2/2
1 2/2
CP-183
1-641-581-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP
1/2
CHASSIS GND

CP-183, DUS-442

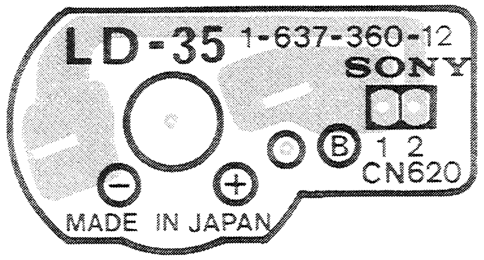

1/2
3
1/2
2
C15
0.047
R21
75
:RN
R22
75
:RN
S2
6
5
4
3
2
1
OFF
ON
1/2
4
1/2
1
1/2
5
CHASSIS
GND
4
3
2
1
CN002
S VIDEO IN
CN003
S VIDEO
THROUGH OUT

13-57

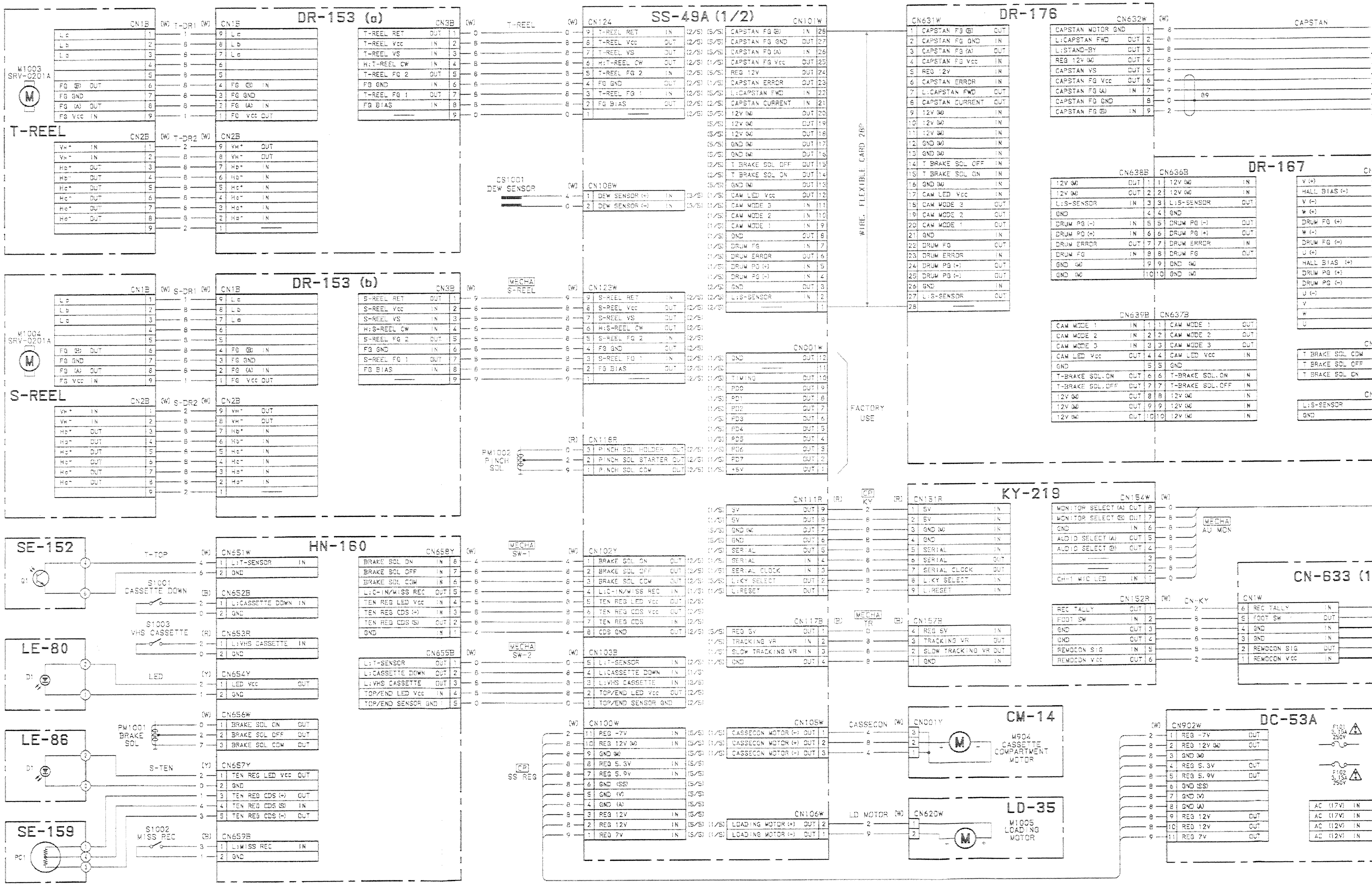
FRAME (1/2)
CM-14 ; CASSETTE COMPARTMENT MOTOR
LD-35 ; LOADING MOTOR


CN001
M904
LOADING
MOTOR

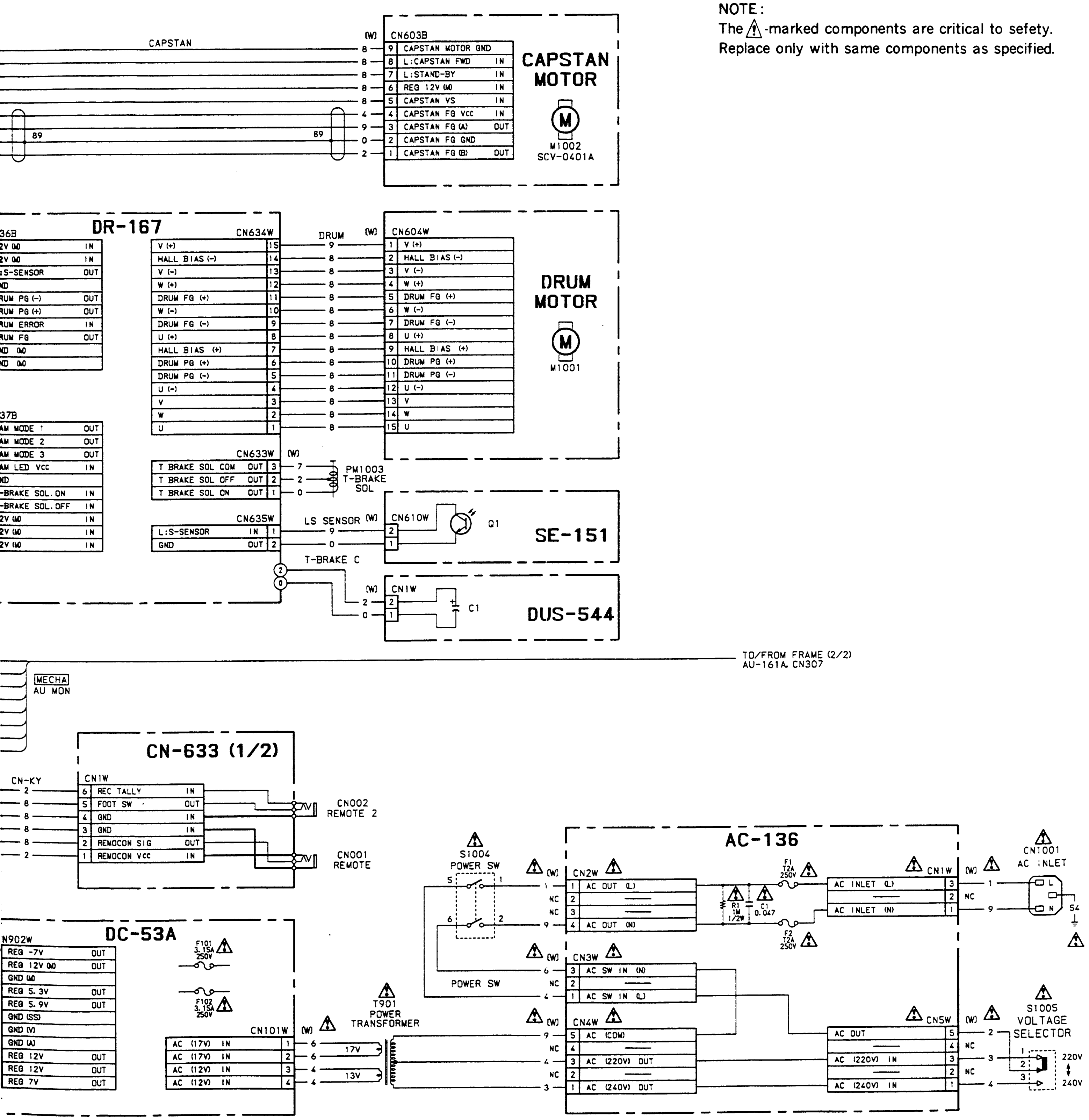
CM-14 — SOLDERING SIDE —
1-630-505-21 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


LD-35 1-637-360-12
SONY
1 2
CN620
MADE IN JAPAN

LD-35 — B SIDE —
1-637-360-12 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


DR-153 (a)
M1003
SRV-0201A
T-REEL
DR-153 (b)
M1004
SRV-0201A
S-REEL
SS-49A (1/2)
CS1001
DEW SENSOR
PM1002
PINCH
SOL
SE-152
S1001
CASSETTE DOWN
S1003
VHS CASSETTE
LE-80
LED
LE-86
PM1001
BRAKE
SOL
S-TEN
SE-159
S1002
MISS REC
HN-160
DR-176
WIRE, FLEXIBLE CARD 28P
FACTORY USE
DR-167
KY-219
CN-633 (1
CM-14
M904
CASSETTE
COMPARTMENT
MOTOR
CASSECON
LD-35
M1005
LOADING
MOTOR
LD MOTOR
DC-53A
CAPSTAN
T-REEL
MECHA
S-REEL
MECHA
SW-1
MECHA
SW-2
MECHA
TR
MECHA
AU MON
SS REG

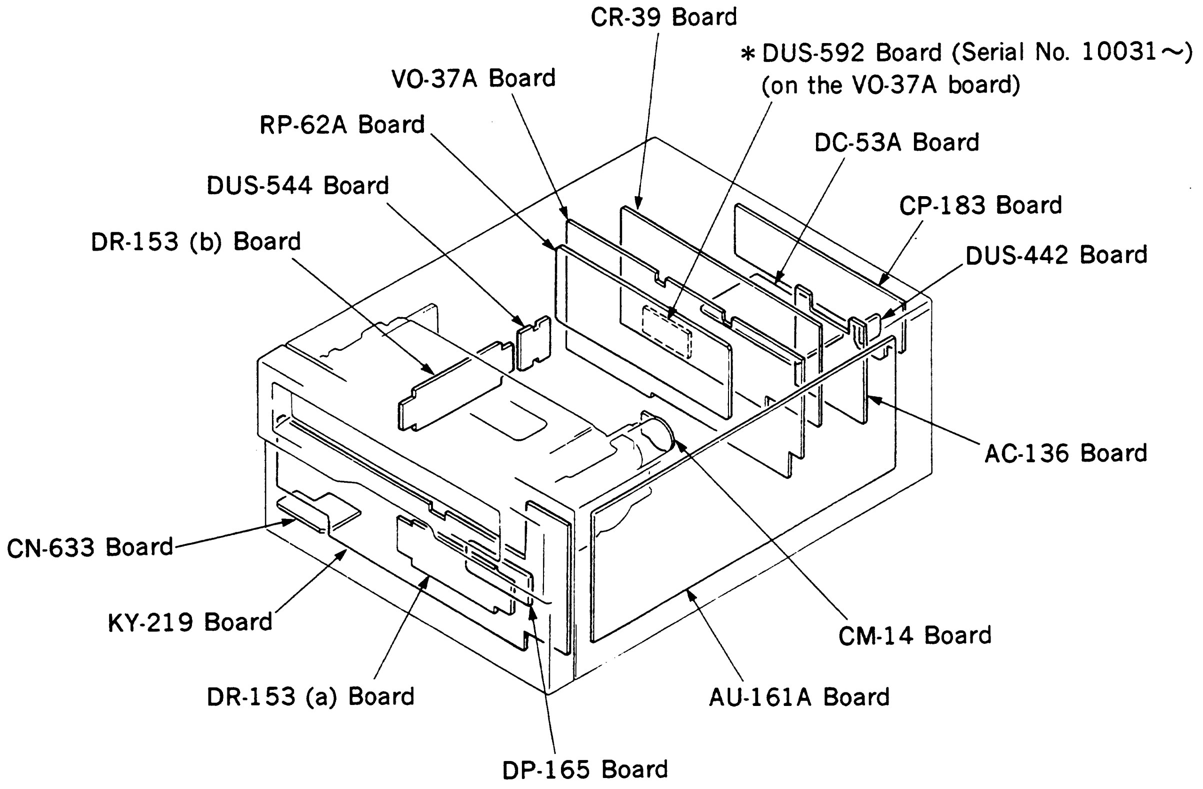
NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

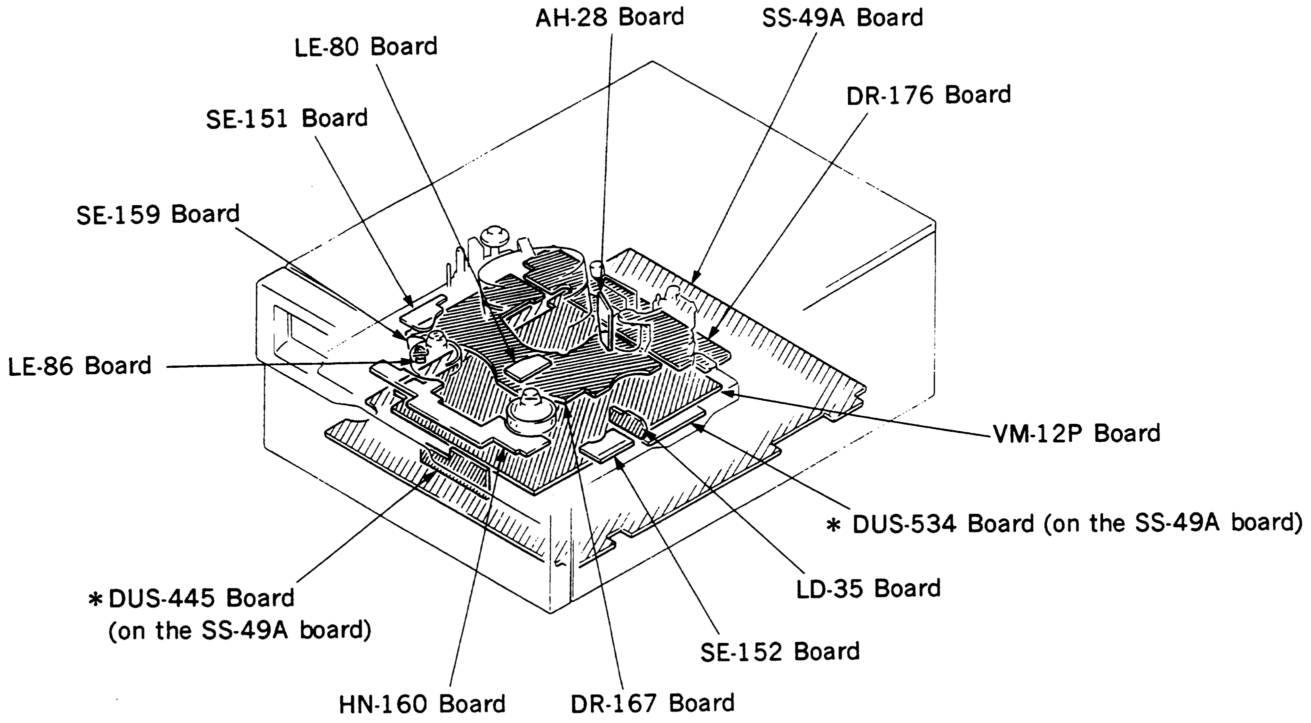

CAPSTAN
CN603B
CAPSTAN MOTOR GND
L:CAPSTAN FWD
L:STAND-BY
REG 12V
CAPSTAN VS
CAPSTAN FG VCC
CAPSTAN FG (A)
CAPSTAN FG GND
CAPSTAN FG (B)
CAPSTAN MOTOR
M1002
SCV-0401A
DR-167
CN634W
DRUM
CN604W
DRUM MOTOR
M1001
CN633W
T BRAKE SOL COM
T BRAKE SOL OFF
T BRAKE SOL ON
PM1003
T-BRAKE SOL
CN635W
L:S-SENSOR
GND
LS SENSOR
CN610W
Q1
SE-151
T-BRAKE C
CN1W
C1
DUS-544
TO/FROM FRAME (2/2) AU-161A CN307
MECHA
AU MON
CN-633 (1/2)
CN-KY
REC TALLY
FOOT SW
GND
REMOCON SIG
REMOCON VCC
CN002 REMOTE 2
CN001 REMOTE
S1004 POWER SW
POWER SW
AC-136
CN2W
AC OUT (L)
AC OUT (N)
CN3W
AC SW IN (N)
AC SW IN (L)
CN4W
AC (COM)
AC (220V) OUT
AC (240V) OUT
F1 T2A 250V
F2 T2A 250V
R1 1M 1/2W
C1 0.047
CN1W
AC INLET (L)
AC INLET (N)
CN1001 AC INLET
CN5W
AC OUT
AC (220V) IN
AC (240V) IN
S1005 VOLTAGE SELECTOR
220V
240V
DC-53A
N902W
REG -7V
REG 12V
REG 5.3V
REG 5.9V
REG 7V
F101 3.15A 250V
F102 3.15A 250V
CN101W
AC (17V) IN
AC (12V) IN
T901 POWER TRANSFORMER
17V
13V

FRAME (1/2)

SVO-9500MDP (1)

LOCATION OF PRINTED CIRCUIT BOARD

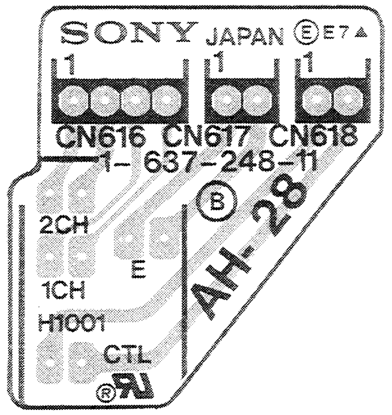

CR-39 Board
∗DUS-592 Board (Serial No. 10031∼)
(on the VO-37A board)
VO-37A Board
RP-62A Board
DC-53A Board
DUS-544 Board
CP-183 Board
DR-153 (b) Board
DUS-442 Board
AC-136 Board
CN-633 Board
KY-219 Board
CM-14 Board
DR-153 (a) Board
AU-161A Board
DP-165 Board


AH-28 Board
SS-49A Board
LE-80 Board
DR-176 Board
SE-151 Board
SE-159 Board
LE-86 Board
VM-12P Board
∗DUS-534 Board (on the SS-49A board)
∗DUS-445 Board
(on the SS-49A board)
LD-35 Board
SE-152 Board
HN-160 Board
DR-167 Board

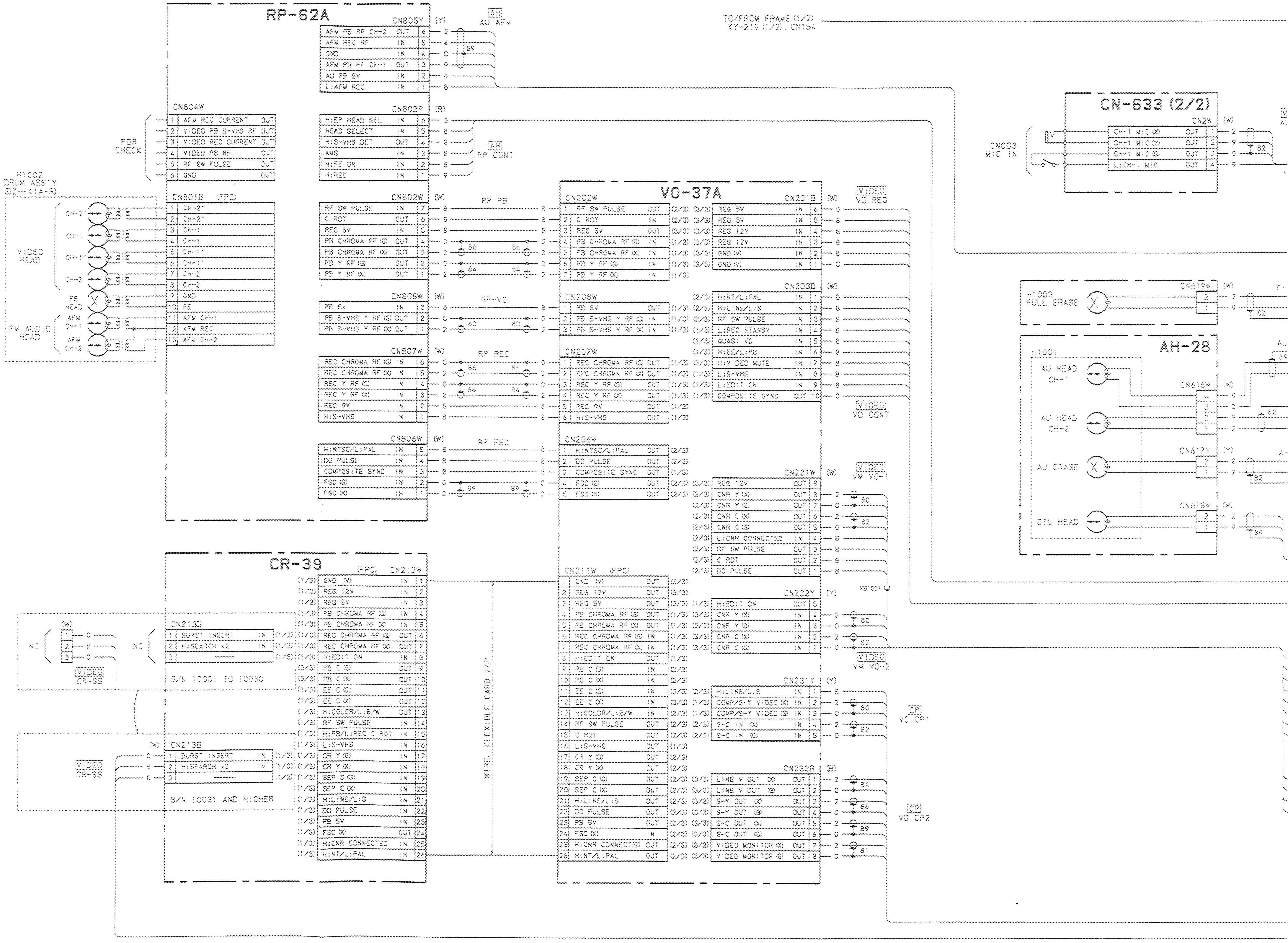
NOTE:
Printed circuit boards marked with ∗ on the above illustrations are omitted from the frame diagrams.

FRAME (2/2), AH-28

FRAME (2/2)
AH-28 ; AUDIO/ERASE/CTL HEAD

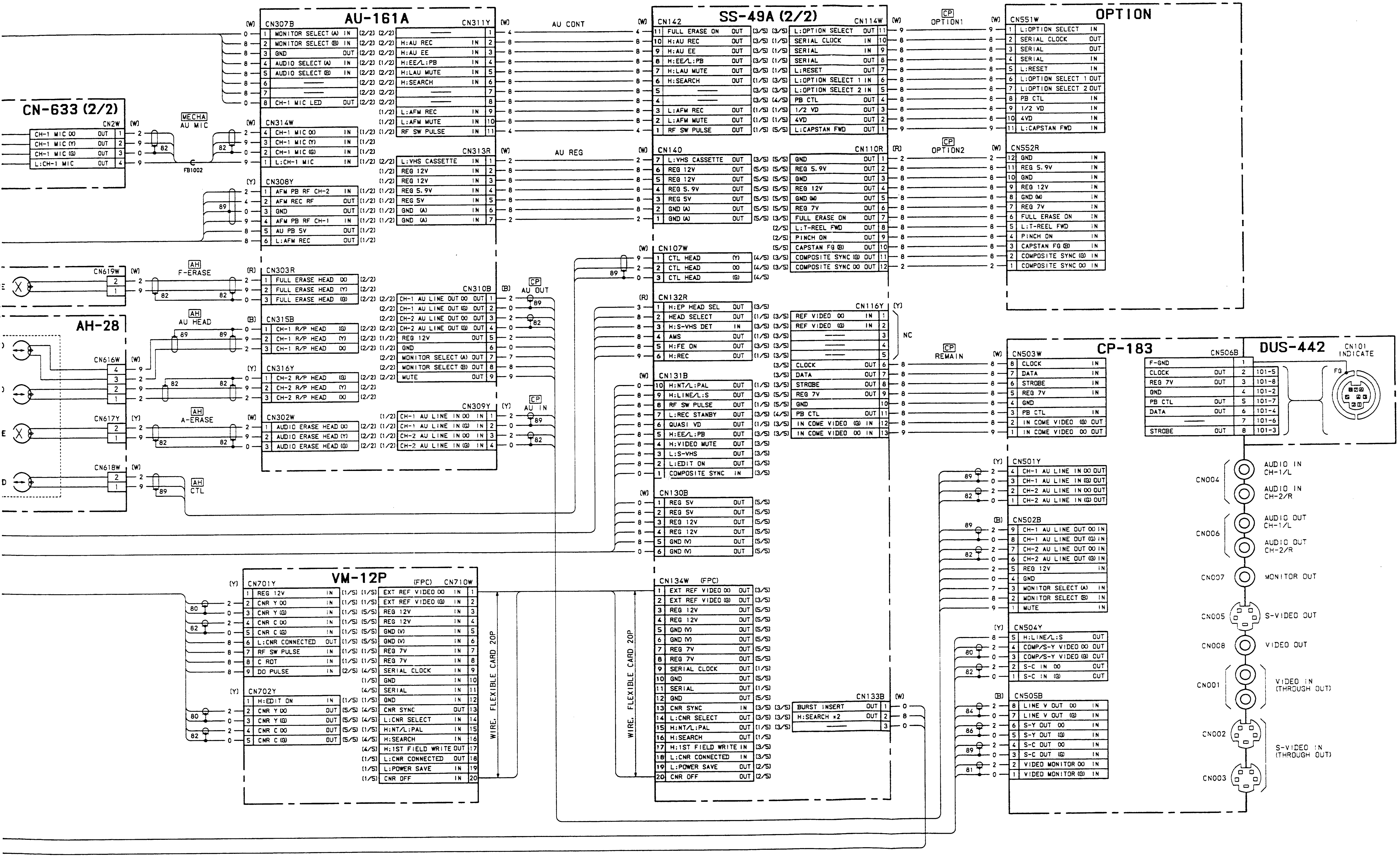

SONY JAPAN Ⓔ E7
CN616
CN617
CN618
1-637-248-11
AH-28
2CH
1CH
E
H1001
CTL

AH-28 — B SIDE —
1-637-248-11 (1)
SVO-9500MD
SVO-9500MD4
SVO-9500MDP


RP-62A
CN805Y
CN803R
CN804W
FOR CHECK
H1002 DRUM ASS'Y (DZH-41A-R)
VIDEO HEAD
FE HEAD
FM AUDIO HEAD
CN801B (FPC)
CN802W
CN808W
CN807W
CN806W
AH AU AFM
AH RP CONT
RP PB
RP-VO
RP REC
RP FSC
TO/FROM FRAME (1/2) KY-219 (1/2), CN154
VO-37A
CN202W
CN201B
CN203B
CN208W
CN207W
CN206W
CN221W
CN222Y
CN231Y
CN232B
CN211W (FPC)
VIDEO VO REG
VIDEO VO CONT
VIDEO VM VO-1
VIDEO VM VO-2
CP VO CP1
CP VO CP2
FB1001
CR-39
CN212W (FPC)
CN213B
NC
VIDEO CR-SS
S/N 10001 TO 10030
S/N 10031 AND HIGHER
WIRE, FLEXIBLE CARD 26P
CN-633 (2/2)
CN2W
CN003 MIC IN
H1003 FULL ERASE
CN619W
AH-28
H1001
AU HEAD CH-1
AU HEAD CH-2
AU ERASE
CTL HEAD
CN616W
CN617Y
CN618W

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

13-59


AU-161A
CN307B
MONITOR SELECT (A)
MONITOR SELECT (B)
GND
AUDIO SELECT (A)
AUDIO SELECT (B)
CH-1 MIC LED
CN311Y
H:AU REC
H:AU EE
H:EE/L:PB
H:LAU MUTE
H:SEARCH
L:AFM REC
L:AFM MUTE
RF SW PULSE
AU CONT
CN314W
CH-1 MIC (X)
CH-1 MIC (Y)
CH-1 MIC (G)
L:CH-1 MIC
CN313R
L:VHS CASSETTE
REG 12V
REG 5.9V
REG 5V
GND (A)
AU REG
CN308Y
AFM PB RF CH-2
AFM REC RF
GND
AFM PB RF CH-1
AU PB 5V
L:AFM REC
CN-633 (2/2)
CN2W
CH-1 MIC (X)
CH-1 MIC (Y)
CH-1 MIC (G)
L:CH-1 MIC
MECHA
AU MIC
FB1002
AH
F-ERASE
CN619W
CN303R
FULL ERASE HEAD (X)
FULL ERASE HEAD (Y)
FULL ERASE HEAD (G)
CN310B
CH-1 AU LINE OUT (X)
CH-1 AU LINE OUT (G)
CH-2 AU LINE OUT (X)
CH-2 AU LINE OUT (G)
REG 12V
GND
MONITOR SELECT (A)
MONITOR SELECT (B)
MUTE
CP
AU OUT
AH-28
AH
AU HEAD
CN616W
CN315B
CH-1 R/P HEAD (G)
CH-1 R/P HEAD (Y)
CH-1 R/P HEAD (X)
CN316Y
CH-2 R/P HEAD (G)
CH-2 R/P HEAD (Y)
CH-2 R/P HEAD (X)
CN617Y
AH
A-ERASE
CN302W
AUDIO ERASE HEAD (X)
AUDIO ERASE HEAD (Y)
AUDIO ERASE HEAD (G)
CN309Y
CH-1 AU LINE IN (X)
CH-1 AU LINE IN (G)
CH-2 AU LINE IN (X)
CH-2 AU LINE IN (G)
CP
AU IN
CN618W
AH
CTL
SS-49A (2/2)
CN142
FULL ERASE ON
H:AU REC
H:AU EE
H:EE/L:PB
H:LAU MUTE
H:SEARCH
L:AFM REC
L:AFM MUTE
RF SW PULSE
CN114W
L:OPTION SELECT
SERIAL CLOCK
SERIAL
SERIAL
L:RESET
L:OPTION SELECT 1
L:OPTION SELECT 2
PB CTL
1/2 VD
4VD
L:CAPSTAN FWD
CP
OPTION1
CN140
L:VHS CASSETTE
REG 12V
REG 12V
REG 5.9V
REG 5V
GND (A)
GND (A)
CN110R
GND
REG 5.9V
GND
REG 12V
GND (M)
REG 7V
FULL ERASE ON
L:T-REEL FWD
PINCH ON
CAPSTAN FG (B)
COMPOSITE SYNC (G)
COMPOSITE SYNC (X)
CP
OPTION2
CN107W
CTL HEAD
CTL HEAD
CTL HEAD
CN132R
H:EP HEAD SEL
HEAD SELECT
H:S-VHS DET
AMS
H:FE ON
H:REC
CN116Y
REF VIDEO (X)
REF VIDEO (G)
NC
CLOCK
DATA
STROBE
REG 7V
GND
PB CTL
IN COME VIDEO (G)
IN COME VIDEO (X)
CP
REMAIN
CN131B
H:NT/L:PAL
H:LINE/L:S
RF SW PULSE
L:REC STANBY
QUASI VD
H:EE/L:PB
H:VIDEO MUTE
L:S-VHS
L:EDIT ON
COMPOSITE SYNC
CN130B
REG 5V
REG 5V
REG 12V
REG 12V
GND (V)
GND (V)
CN134W (FPC)
EXT REF VIDEO (X)
EXT REF VIDEO (G)
REG 12V
REG 12V
GND (V)
GND (V)
REG 7V
REG 7V
SERIAL CLOCK
GND
SERIAL
GND
CNR SYNC
L:CNR SELECT
H:NT/L:PAL
H:SEARCH
H:1ST FIELD WRITE
L:CNR CONNECTED
L:POWER SAVE
CNR OFF
CN133B
BURST INSERT
H:SEARCH ×2
WIRE, FLEXIBLE CARD 20P
WIRE, FLEXIBLE CARD 20P
VM-12P
CN701Y
REG 12V
CNR Y (X)
CNR Y (G)
CNR C (X)
CNR C (G)
L:CNR CONNECTED
RF SW PULSE
C ROT
DO PULSE
(FPC) CN710W
EXT REF VIDEO (X)
EXT REF VIDEO (G)
REG 12V
REG 12V
GND (V)
GND (V)
REG 7V
REG 7V
SERIAL CLOCK
GND
SERIAL
GND
CNR SYNC
L:CNR SELECT
H:NT/L:PAL
H:SEARCH
H:1ST FIELD WRITE
L:CNR CONNECTED
L:POWER SAVE
CNR OFF
CN702Y
H:EDIT ON
CNR Y (X)
CNR Y (G)
CNR C (X)
CNR C (G)
OPTION
CN551W
L:OPTION SELECT
SERIAL CLOCK
SERIAL
SERIAL
L:RESET
L:OPTION SELECT 1
L:OPTION SELECT 2
PB CTL
1/2 VD
4VD
L:CAPSTAN FWD
CN552R
GND
REG 5.9V
GND
REG 12V
GND (M)
REG 7V
FULL ERASE ON
L:T-REEL FWD
PINCH ON
CAPSTAN FG (B)
COMPOSITE SYNC (G)
COMPOSITE SYNC (X)
CP-183
CN503W
CLOCK
DATA
STROBE
REG 7V
GND
PB CTL
IN COME VIDEO (G)
IN COME VIDEO (X)
CN506B
DUS-442
F-GND
CLOCK
REG 7V
GND
PB CTL
DATA
STROBE
101-5
101-8
101-2
101-7
101-4
101-6
101-3
CN101
INDICATE
FG
CN501Y
CH-1 AU LINE IN (X)
CH-1 AU LINE IN (G)
CH-2 AU LINE IN (X)
CH-2 AU LINE IN (G)
CN502B
CH-1 AU LINE OUT (X)
CH-1 AU LINE OUT (G)
CH-2 AU LINE OUT (X)
CH-2 AU LINE OUT (G)
REG 12V
GND
MONITOR SELECT (A)
MONITOR SELECT (B)
MUTE
CN504Y
H:LINE/L:S
COMP/S-Y VIDEO (X)
COMP/S-Y VIDEO (G)
S-C IN (X)
S-C IN (G)
CN505B
LINE V OUT (X)
LINE V OUT (G)
S-Y OUT (X)
S-Y OUT (G)
S-C OUT (X)
S-C OUT (G)
VIDEO MONITOR (X)
VIDEO MONITOR (G)
CN004
AUDIO IN CH-1/L
AUDIO IN CH-2/R
CN006
AUDIO OUT CH-1/L
AUDIO OUT CH-2/R
CN007
MONITOR OUT
CN005
S-VIDEO OUT
CN008
VIDEO OUT
CN001
VIDEO IN (THROUGH OUT)
CN002
CN003
S-VIDEO IN (THROUGH OUT)
1
2
3
4
5
H
I
J
K
L
M
N
O
P

FRAME (2/2)

SVO-9500MDP (1)

SECTION 14
SPARE PARTS AND FIXTURES

14-1. PARTS INFORMATION

(1) Components marked with ⚠ on the spare parts list are critical to safe operation. Replace these components with Sony Parts whose part numbers appear in this manual or in service manual supplements published by Sony.

(2) Spare Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to **improved parts and/or engineering changes or standardization of genuine parts.**
This manual's spare parts list indicate the part numbers of **the standardized genuine parts at the present.** Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with **s** in the SP (Supply Code) column of the parts list are normally stocked for replacement purposes. The parts marked with **o** in the SP column are not normally required for routine service work. Orders for parts marked with **o** will be processed, but allow for additional delivery time.

(4) Items with no part mumber and/or no description are not stocked because they are seldom required for routine service.

(5) All resistors are in ohms.

14-2. EXPLODED VIEWS

- Exploded views are composed of the following blocks.

(1) Ornamental panel block ....Page 14-3
    Top panel
    Front panel
    U case
    Rear panel

(2) Printed circuit boards ....Page 14-4
    Power switch
    Power transformer
    Remote control jack
    Voltage selector

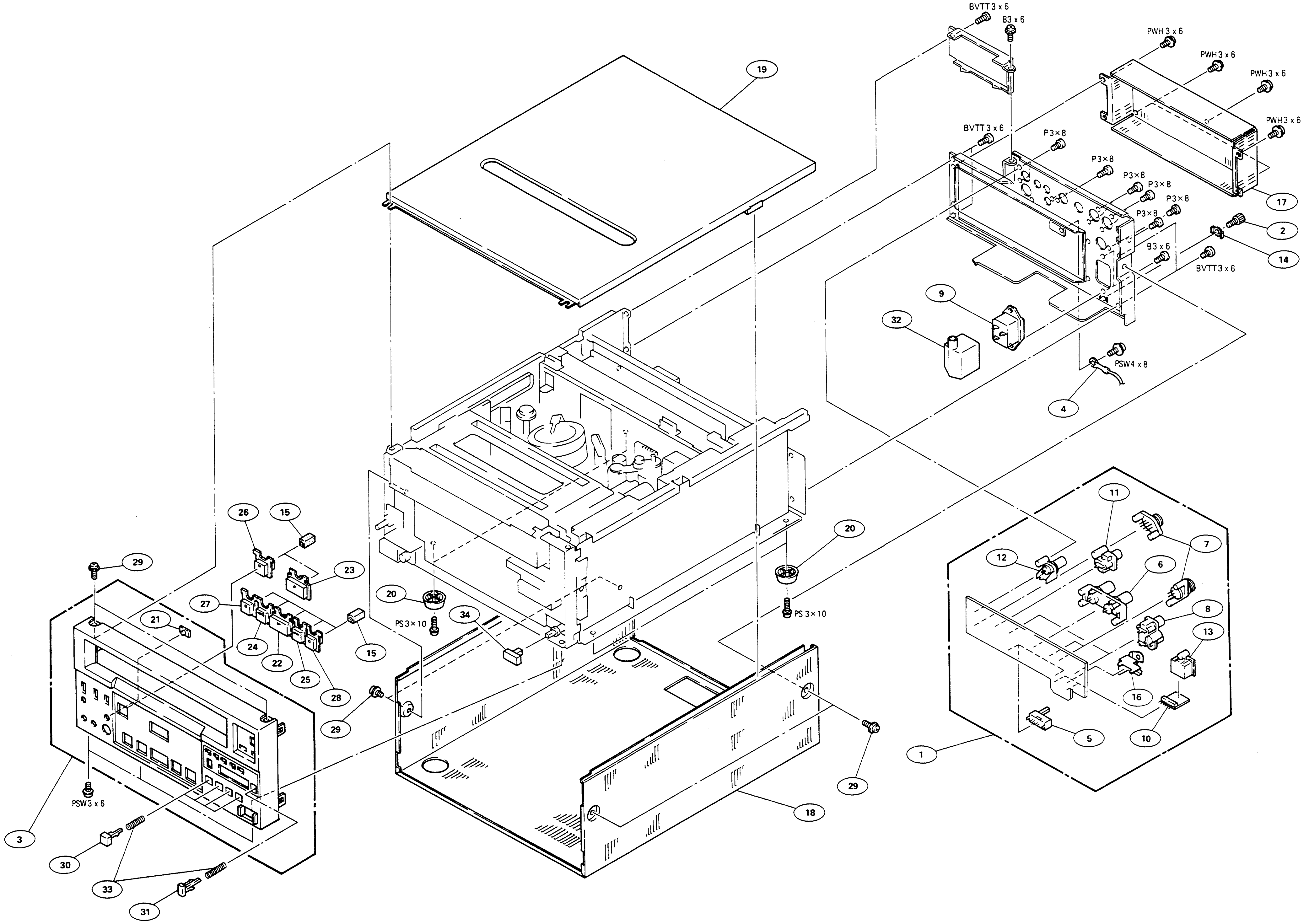
(3) Cassette compartment block ....Page 14-5

(4) Head drum and tape run blocks ....Page 14-6
    Head drum
    Cleaning roller
    Tape guides
    Stationary heads
    Slide rails

(5) Reel table and pinch roller blocks ....Page 14-7
    S/T reel table
    Pinch roller block
    Tension regulator arm
    RVS tape guide

(6) Mechanism control block ....Page 14-8
    Reel motor
    Capstan motor
    Cam motor block
    S/T brake arm
    Threading gear assembly

Ornamental panel block


BVTT3 x 6
B3 x 6
PWH3 x 6
PWH3 x 6
PWH3 x 6
PWH3 x 6
BVTT3 x 6
P3 x 8
P3 x 8
P3 x 8
P3 x 8
P3 x 8
P3 x 8
B3 x 6
BVTT3 x 6
PSW4 x 8
PS3 x 10
PS3 x 10
PSW3 x 6
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
15
16
17
18
19
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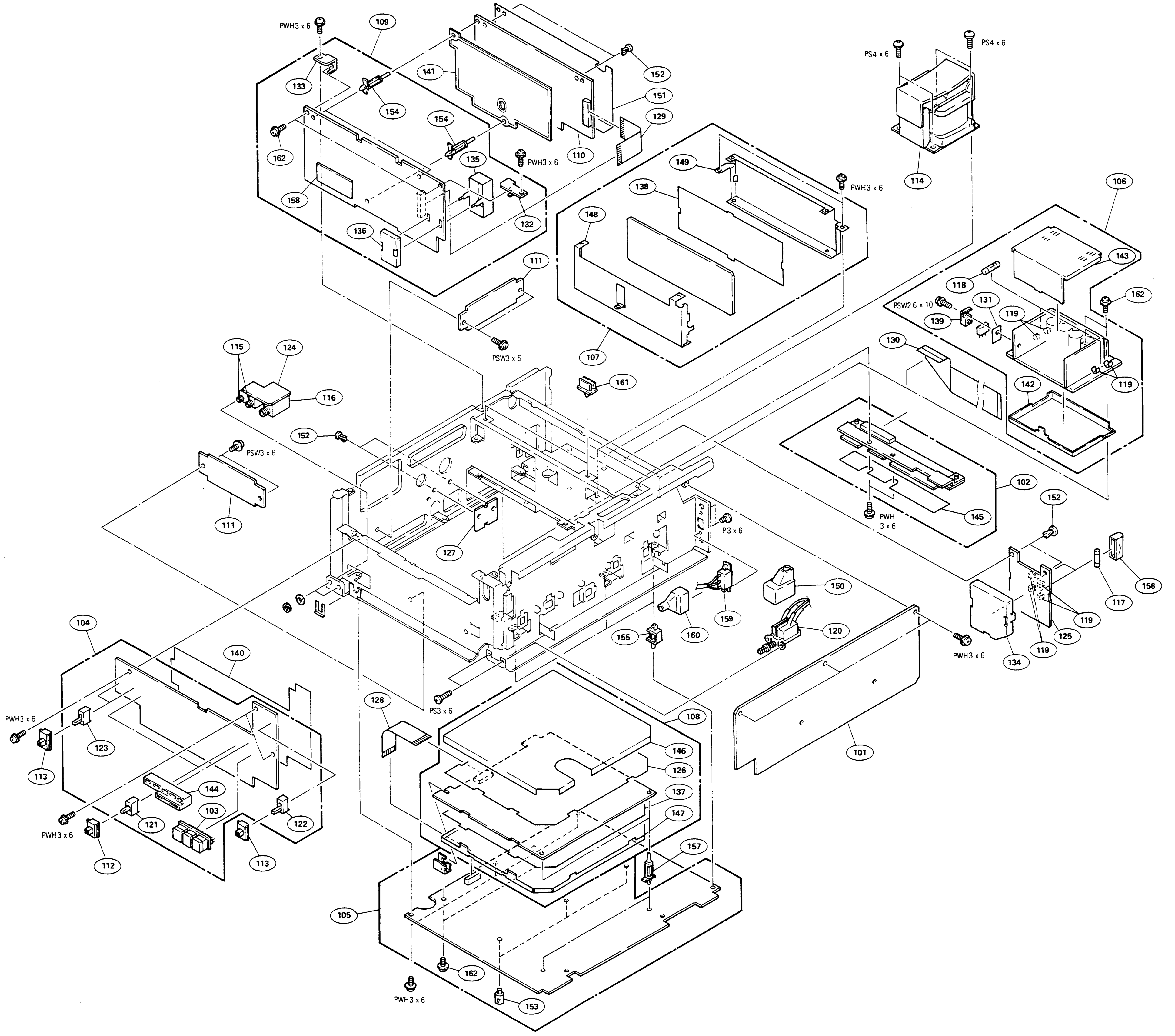
32
33
34

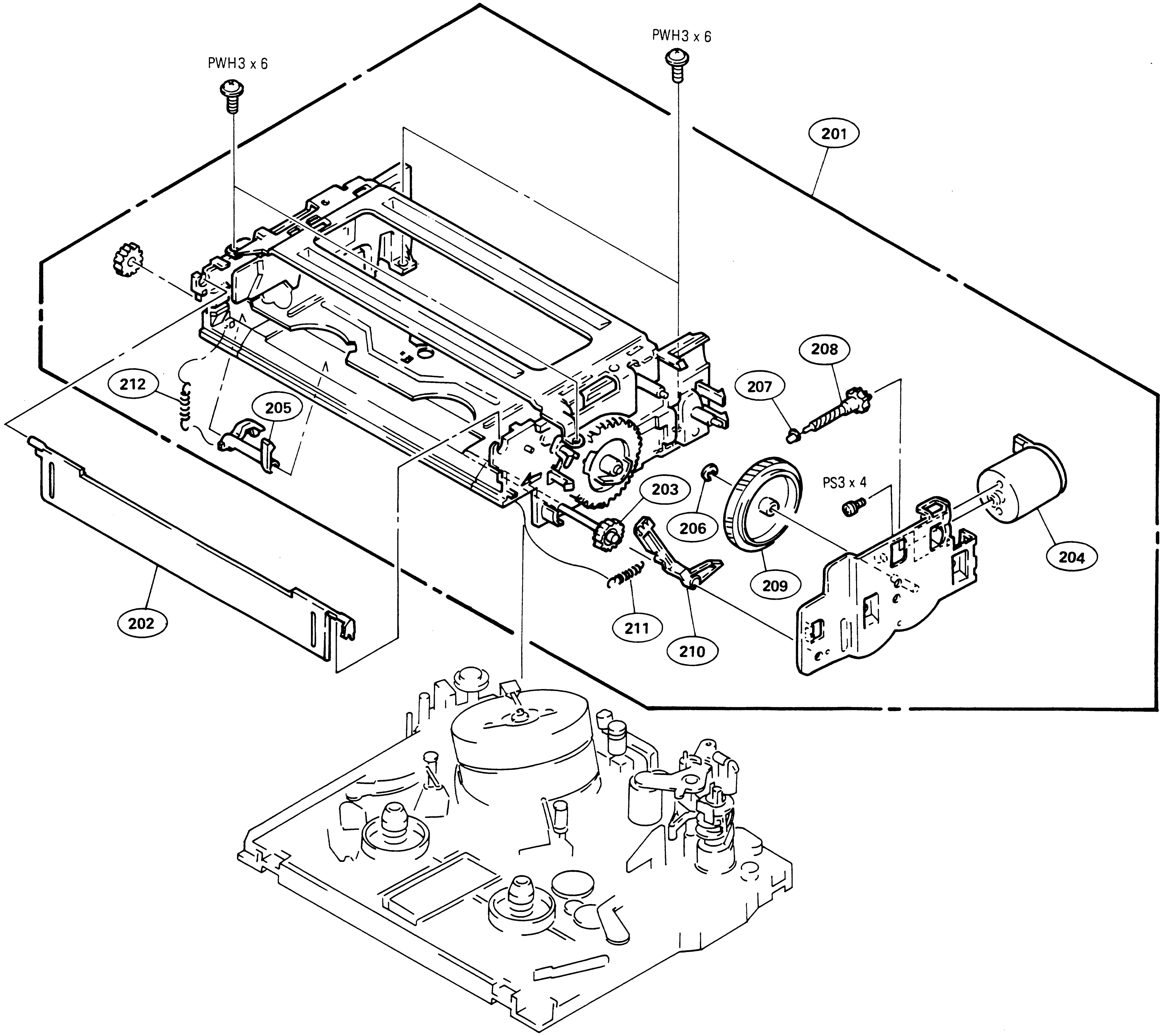
No.	Part No.	SP	Description
1	A-6756-339-A	o	MOUNTED CIRCUIT BOARD. CP-183
2	X-2068-004-0	s	TERMINAL ASSY
3	X-3166-686-4	o	PANEL (P) SUB ASSY. FRONT
4	1-535-316-11	o	TERMINAL. GROUND (M4)
5	1-570-145-11	s	SWITCH. SLIDE
6	1-573-580-11	s	CONNECTOR. DUAL BNC. FEMALE
7	1-573-590-12	s	CONNECTOR. ROUND 4P. FEMALE
8	1-573-744-11	s	JACK. PIN 2P. FEMALE
9 ⚠	1-580-375-11	s	INLET. AC 3P. MALE
10	1-641-582-11	o	PRINTED CIRCUIT BOARD. DUS-442
11	1-691-273-11	s	JACK. PIN 1P. FEMALE
12	1-691-274-11	s	CONNECTOR. BNC. FEMALE
13	1-691-287-11	s	CONNECTOR. ROUND 8P. FEMALE
14	2-068-008-00	s	WASHER
15	2-284-744-00	o	CUSHION (B). KEY
16	3-177-786-01	o	BRACKET. 8P CONNECTOR
17	3-173-493-02	o	COVER. TR
18	3-173-496-01	o	CASE. U
19	3-173-497-01	o	PANEL. TOP
20	3-556-952-01	s	FOOT. M
21	3-648-149-41	o	COVER (DIA.4). LAMP
22	3-672-782-02	s	KEY TOP (A)
23	3-672-782-21	s	KEY TOP (A)
24	3-672-783-02	s	KEY TOP (B)
25	3-672-783-12	s	KEY TOP (B)
26	3-672-783-71	s	KEY TOP (B)
27	3-672-783-81	s	KEY TOP (B)
28	3-672-783-91	s	KEY TOP (B)
29	3-719-159-01	s	SCREW (M3). (+BW)
30	3-733-603-01	s	KEY TOP
31	3-733-606-11	s	PUSH BUTTON (5x9)
32	4-605-946-01	o	COVER. 3P INLET
33	4-866-613-00	s	SPRING. COMPRESSION
34	3-177-530-01	s	PUSH BUTTON (L)

Printed circuit boards


PWH3 x 6
109
133
141
152
151
154
154
129
162
135
110
PWH3 x 6
158
132
136
149
138
PWH3 x 6
148
111
PSW3 x 6
107
PS4 x 6
PS4 x 6
114
106
143
118
162
PSW2.6 x 10
131
139
119
130
142
119
115
124
116
161
152
PSW3 x 6
111
102
152
127
145
PWH 3 x 6
P3 x 6
156
117
150
119
125
159
120
155
160
119
PWH3 x 6
134
104
140
PWH3 x 6
123
113
144
103
121
122
PWH3 x 6
112
113
128
PS3 x 6
108
146
126
137
147
157
101
105
162
PWH3 x 6
153

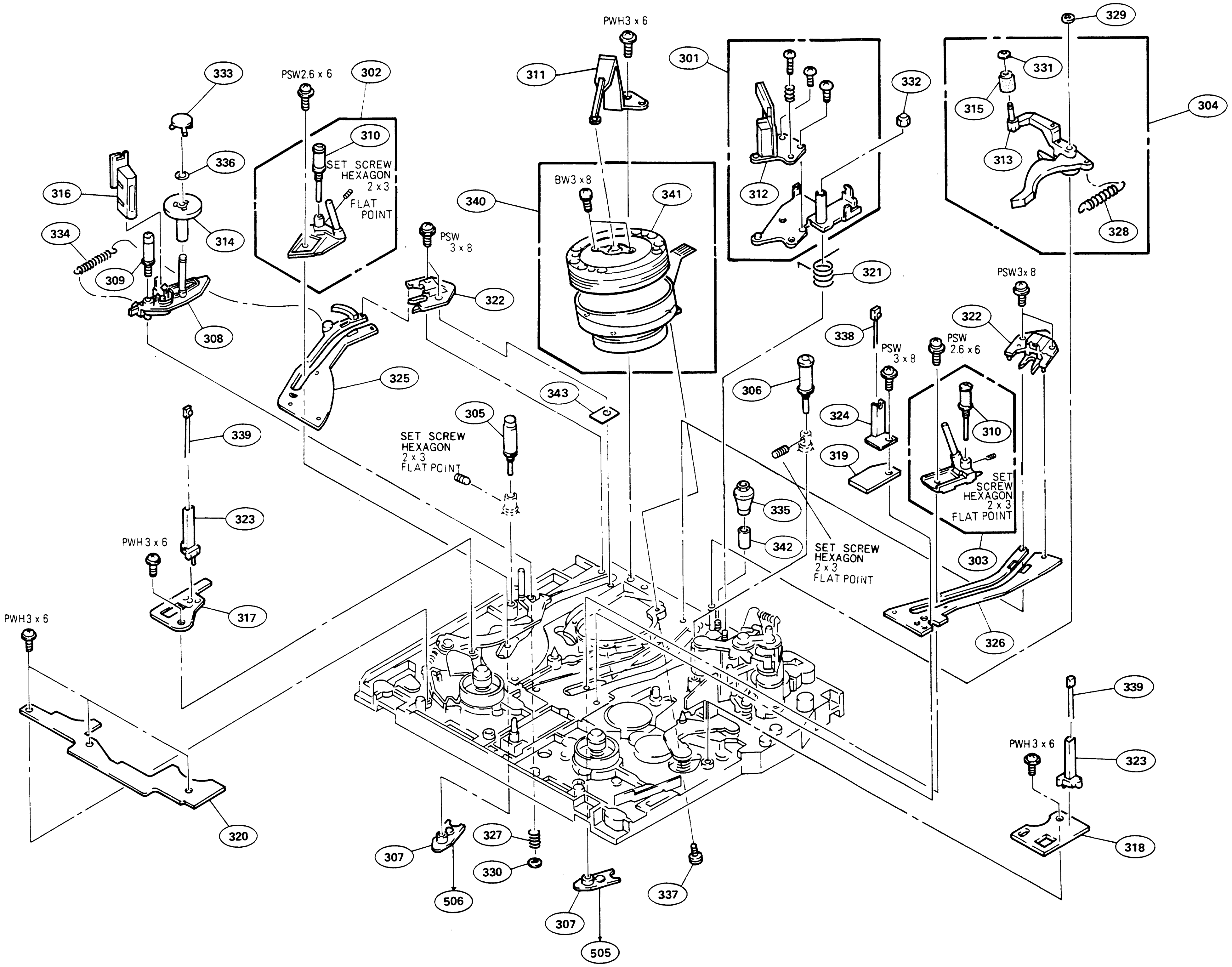
No.	Part No.	SP	Description
101	A-8271-313-B	o	MOUNTED CIRCUIT BOARD. AU-161A
102	A-6715-459-A	o	MOUNTED CIRCUIT BOARD. DR-176
103	A-6716-647-A	o	MOUNTED CIRCUIT BOARD. DP-165
104	A-6717-646-A	o	MOUNTED CIRCUIT BOARD. KY-219
105	A-8271-315-A	o	MOUNTED CIRCUIT BOARD. SS-49A
106	A-8271-314-B	o	MOUNTED CIRCUIT BOARD. DC-53A
107	A-8271-316-A	o	MOUNTED CIRCUIT BOARD. RP-62A
108	A-8271-317-A	o	MOUNTED CIRCUIT BOARD. VM-12P
109	A-8271-318-A	o	MOUNTED CIRCUIT BOARD. VO-37A
110	A-8271-319-A	o	MOUNTED CIRCUIT BOARD. CR-39
111	A-6756-022-A	o	MOUNTED CIRCUIT BOARD. DR-153
112	X-3166-367-1	s	KNOB ASSY (2P). SW
113	X-3166-368-1	s	KNOB ASSY (3P). SW
114 ⚠	1-450-912-11	s	TRANSFORMER. POWER
115	1-507-743-21	s	JACK. STEREO MINIATURE
116	1-507-854-00	s	JACK. LARGE TYPE
117 ⚠	1-532-203-00	s	FUSE. TIME-LAG 2A 250V
118 ⚠	1-532-237-00	s	FUSE. TIME-LAG 3.15A 250V
119	1-533-189-11	s	HOLDER. FUSE
120 ⚠	1-570-052-11	s	SWITCH. PUSH (AC POWER) (1 KEY)
121	1-572-991-11	s	SWITCH. SLIDE
122	1-572-992-11	s	SWITCH. SLIDE
123	1-572-993-11	s	SWITCH. SLIDE
124	1-641-584-11	o	PRINTED CIRCUIT BOARD. CN-633
125	1-643-689-11	o	PRINTED CIRCUIT BOARD. AC-136
126	3-177-646-01	o	SHIELD (C). VM
127	1-644-095-12	o	PRINTED CIRCUIT BOARD. DUS-544
128	1-690-612-11	o	WIRE. FLEXIBLE CARD 20P
129	1-690-613-11	o	WIRE. FLEXIBLE CARD 26P
130	1-690-614-12	o	WIRE. FLEXIBLE CARD 28P
131	2-335-143-01	o	FILM. INSULATING
132	3-168-157-01	o	BRACKET (R). VO
133	3-168-158-01	o	BRACKET (L). VO
134	3-168-180-01	o	COVER. AC PC BOARD
135	3-173-464-01	o	SHIELD (A). VO
136	3-173-465-01	o	SHIELD (B). VO
137	3-173-466-01	o	SHEET. INSULATING. VM
138	3-173-468-01	o	SHEET. INSULATING. RP
139	3-173-469-01	o	BUSHING. TRANSISTOR
140	3-173-475-03	o	SHEET. INSULATING. KY
141	3-173-476-01	o	SHIELD. V
142	X-3166-801-1	o	SHIELD (B) ASSY. DC
143	3-173-478-01	o	SHIELD (A). DC
144	3-173-480-01	o	HOLDER (B). LED
145	3-173-481-02	o	SHEET. INSULATING. DR
146	3-173-489-01	o	SHIELD (A). VM
147	3-173-490-01	o	SHIELD (B). VM
148	3-173-491-02	o	SHIELD (A). RP
149	3-173-492-01	o	SHIELD (B). RP
150	3-177-256-01	o	COVER. PS
151	3-175-214-01	o	SHIELD. CR
152	3-646-090-11	s	RIVET. NYLON
153	3-682-057-11	s	SPACER (SMALL)
154	3-703-353-08	o	SUPPORTER. PC BOARD
155	4-353-620-02	o	HINGE. PC BOARD
156	4-601-472-00	o	COVER. FUSE
157	4-924-098-31	o	HOLDER. PC BOARD
158	A-8276-478-A	o	MOUNTED CIRCUIT BOARD. DUS-529
159 ⚠	1-570-173-11	s	SWITH. VOLTAGE CHANGE
160	3-175-891-01	o	COVER
161	3-642-310-00	s	HOLDER. PC BOARD
162	4-886-821-11	s	SCREW. M3 CASE

Cassette compartment block


PWH3 x 6
PWH3 x 6
201
208
207
212
205
203
206
PS3 x 4
209
204
202
211
210

No.	Part No.	SP	Description
201	A-6751-446-A	s	FL BLOCK ASSY
202	3-173-474-11	s	DOOR, FL
203	X-3727-775-2	s	GEAR (RIGHT) ASSY, MIDWAY
204	X-3727-784-1	s	MOTOR ASSY
205	3-168-046-02	s	LEVER, PREVENTION
206	3-696-510-01	s	WASHER (3), STOPPER
207	3-716-144-02	s	RETAINER, WORM
208	3-736-100-01	s	GEAR (FL), WORM
209	3-736-164-01	s	WHEEL (FL), WORM
210	3-736-167-01	s	ARM, DOOR SWITCHING
211	3-738-285-01	s	SPRING, TENSION
212	3-739-687-01	s	SPRING, TENSION

Head drum and tape run blocks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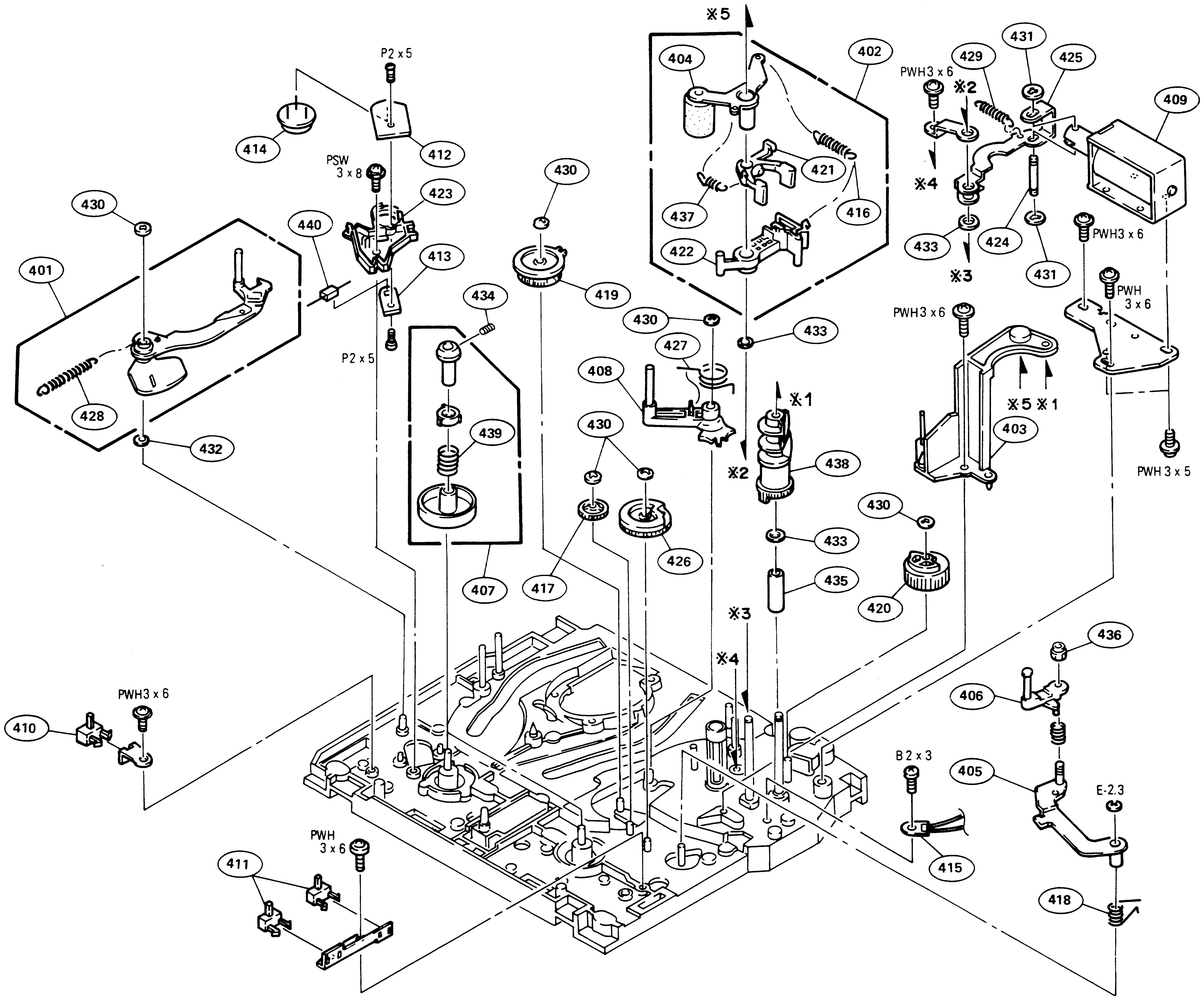
301
332
329
331
304
315
313
328
333
PSW2.6 x 6
302
310
SET SCREW HEXAGON 2 x 3 FLAT POINT
336
316
314
334
309
308
340
BW3 x 8
341
PSW 3 x 8
322
312
321
PSW3x 8
325
343
338
PSW 3 x 8
PSW 2.6 x 6
306
324
305
SET SCREW HEXAGON 2 x 3 FLAT POINT
339
319
310
SET SCREW HEXAGON 2 x 3 FLAT POINT
335
342
SET SCREW HEXAGON 2 x 3 FLAT POINT
323
303
PWH3 x 6
317
326
PWH3 x 6
339
PWH3 x 6
323
320
327
307
330
506
337
307
505
318

No.	Part No.	SP	Description
301	A-6736-092-A	s	HEAD ASSY. AUDIO
302	A-6746-062-B	s	SHUTTLE (LEFT) BLOCK ASSY
303	A-6746-063-B	s	SHUTTLE (RIGHT) BLOCK ASSY
304	A-6747-277-A	o	ROLLER BLOCK ASSY. BC
305	X-3165-325-2	s	ROLLER ASSY. No.1 GUIDE
306	X-3165-326-2	s	ROLLER ASSY. No.9 GUIDE
307	X-3165-329-1	o	PLATE ASSY. SHUTTLE
308	X-3165-335-1	o	BASE ASSY. STABILIZER
309	X-3165-336-1	s	ROLLER ASSY. No.2 GUIDE
310	X-3165-337-1	s	ROLLER ASSY. GUIDE
311	X-3165-584-1	s	GROUND ASSY. SHAFT
312	X-3165-588-1	o	HEAD ASSY. ACE
313	X-3166-556-1	o	ARM ASSY. MC ROLLER
314	X-3727-771-1	s	STABILIZER ASSY. TAPE
315	X-3743-515-4	s	ROLLER ASSY. C
316	1-543-695-11	s	HEAD. FULL-ERASE
317	1-637-245-13	o	PRINTED CIRCUIT BOARD. SE-151
318	1-637-246-12	o	PRINTED CIRCUIT BOARD. SE-152
319	1-637-247-11	o	PRINTED CIRCUIT BOARD. LE-80
320	1-637-251-12	o	PRINTED CIRCUIT BOARD. HN-160
321	3-166-987-01	s	SPRING. AH COIL
322	3-166-992-02	s	HOLDER. SHUTTLE
323	3-167-013-02	o	HOLDER. ST SENSOR
324	3-167-028-02	o	HOLDER. LED
325	3-167-034-02	s	RAIL (L). SLIDE
326	3-167-035-05	s	RAIL (R). SLIDE
327	3-305-423-00	s	SPRING. COMPRESSION
328	3-669-979-00	s	SPRING. TENSION
329	3-650-537-00	o	WASHER
330	3-669-465-00	s	WASHER (1.5). STOPPER
331	3-669-595-00	s	WASHER (2). STOPPER
332	3-736-041-01	s	NUT (N3). NYLON
333	3-736-082-01	s	RETAINER. TS THRUST
334	3-736-745-01	s	SPRING
335	3-738-250-01	s	SCREW. AC ADJUSTMENT
336	3-741-925-01	s	RING. RETAINING
337	3-899-248-11	s	SCREW (M3x8)
338	8-719-985-00	s	LED GL451VS1. IR
339	8-729-926-31	s	PHOTOTRANSISTOR PT483F1S
340	8-848-578-12	s	DRUM ASSY DZH-41A-R
341	8-848-579-02	s	UPPER DRUM ASSY DZR-41-R
342	3-177-109-01	s	SLEEVE
343	3-675-713-91	s	SPACER. VIDEO HEAD

Reel table and pinch roller blocks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PWH3 x 6
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P2 x 5
414
412
PSW
3 x 8
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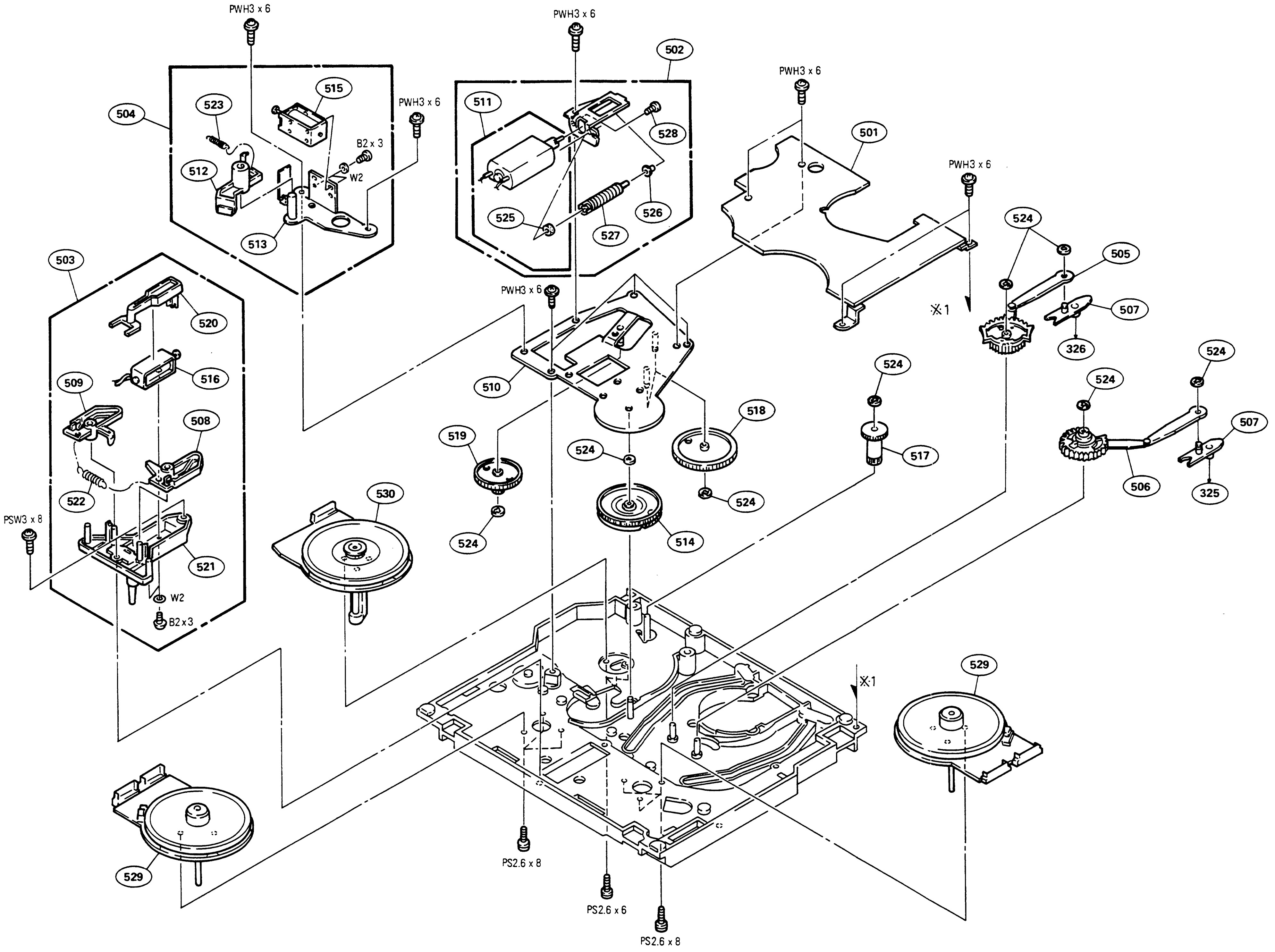
421
416
※4
430
440
437
401
413
422
433
424
431
※3
434
419
PWH3 x 6
PWH3 x 6
PWH
3 x 6
P2 x 5
430
433
427
408
※1
428
432
439
430
※5 ※1
403
438
※2
PWH 3 x 5
430
433
426
435
407
417
420
※3
436
※4
PWH3 x 6
406
410
B2 x 3
405
E-2.3
PWH
3 x 6
415
411
418

No.	Part No.	SP	Description
401	A-6742-071-A	s	ARM ASSY. TENSION REGULATOR
402	A-6750-279-C	s	PINCH ROLLER BLOCK ASSY
403	X-3166-781-1	o	OPENER ASSY. CASSETTE
404	X-3165-332-2	o	ARM ASSY. PINCH ROLLER
405	X-3165-340-1	o	ARM ASSY. RVS
406	X-3165-341-1	s	BASE ASSY. GUIDE
407	X-3165-345-1	s	TABLE ASSY. REEL
408	X-3166-369-2	s	GEAR ASSY. FR
409	1-454-434-21	s	SOLENOID. PLUNGER
410	1-570-711-11	s	SWITCH. MICRO
411	1-571-099-11	s	SWITCH. MICRO
412	1-637-249-11	o	PRINTED CIRCUIT BOARD. SE-159
413	1-637-250-11	o	PRINTED CIRCUIT BOARD. LE-86
414	1-806-232-21	s	DETECTOR MB-1102/S.N
415	1-806-682-91	s	SENSOR. DEW CONDENSATION
416	3-177-579-01	s	SPRING
417	3-166-989-01	s	GEAR. RVS RELAY
418	3-166-991-01	s	SPRING. RVS COIL
419	3-167-006-01	s	GEAR. FR DRIVING
420	3-167-008-01	s	GEAR. PRESS CAM
421	3-167-011-02	o	CONVEXITY BLOCK
422	3-167-012-02	o	ARM. PRESS LOCK
423	3-167-036-01	o	HOLDER. STD
424	3-174-491-01	o	PIN. SOLENOID
425	3-174-492-01	o	LEVER. PRESS
426	3-174-891-01	s	GEAR (2). RVS CAM
427	3-174-892-01	s	SPRING. FR COIL
428	3-490-159-00	s	SPRING. TENSION
429	3-646-209-11	s	SPRING. M-SW LEVER
430	3-669-596-00	s	WASHER (2.3). STOPPER
431	3-694-792-01	o	WASHER
432	3-701-439-21	s	WASHER. POLY 3MM DIA..0.5t
433	3-701-443-21	s	WASHER. POLY 5MM DIA..0.5t
434	3-701-506-01	s	SET SCREW. DOUBLE POINT 3x4
435	3-703-309-31	s	SPACER (5x18)
436	3-736-041-01	s	NUT (N3). NYLON
437	3-736-046-01	s	SPRING (RETURN). TENSION
438	3-736-136-01	s	CAM. ELEVATOR
439	3-739-621-01	s	SPRING. COMPRESSION
440	8-719-821-22	s	LED TL0221. ORG

Mechanism control block


PWH3 x 6
504
523
515
PWH3 x 6
B2 x 3
W2
512
513
PWH3 x 6
502
511
528
525
526
527
PWH3 x 6
501
PWH3 x 6
524
505
507
326
※1
503
520
516
509
508
522
521
PSW3 x 8
W2
B2x3
PWH3 x 6
510
519
524
518
524
517
514
524
530
524
524
506
507
325
529
※1
529
PS2.6 x 8
PS2.6 x 6
PS2.6 x 8

No.	Part No.	SP	Description
501	A-6715-460-A	o	MOUNTED CIRCUIT BOARD. DR-167
502	A-6737-203-B	s	MOTOR BLOCK ASSY. CAM
503	A-6741-069-A	o	BRAKE BLOCK ASSY. REEL
504	A-6741-070-A	o	BRAKE BLOCK ASSY. LDB
505	A-6750-281-A	s	GEAR (RIGHT) BLOCK ASSY. LOADING
506	A-6750-282-A	s	GEAR (LEFT) BLOCK ASSY. LOADING
507	X-3165-329-1	o	PLATE ASSY. SHUTTLE
508	X-3165-330-3	s	ARM (S) ASSY. BRAKE
509	X-3165-331-2	s	ARM (T) ASSY. BRAKE
510	X-3165-347-2	o	HOLDER ASSY. DRIVING GEAR
511	X-3165-593-2	o	MOTOR ASSY. CAM
512	X-3166-511-1	s	ARM ASSY. LDB
513	X-3166-512-2	o	LDB (BASE) ASSY
514	X-3166-575-1	s	GEAR (2) ASSY. MODE
515	1-454-334-71	s	SOLENOID. PLUNGER
516	1-454-531-11	s	SOLENOID. PLUNGER
517	3-166-988-01	s	GEAR. PINCH COMMUNICATION
518	3-167-001-01	s	GEAR. RELAY
519	3-167-081-01	s	WHEEL. WORM
520	3-167-834-01	o	SLIDER. B
521	3-167-835-01	o	CLAMP. M
522	3-492-141-XX	s	SPRING. TENSION
523	3-176-439-02	s	SPRING. TENSION
524	3-669-596-00	s	WASHER (2.3). STOPPER
525	3-696-388-01	s	RUBBER. JOINT
526	3-716-144-02	s	RETAINER. WORM
527	3-733-395-01	s	GEAR (CAM). WORM
528	7-627-553-28	s	SCREW. PRECISION +P 2x2.5
529	8-835-432-01	s	MOTOR. DC SRV-0201A
530	8-835-480-02	s	MOTOR. DC SCV-0401A

14-3. ELECTRICAL PARTS LIST

AC-136 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-643-689-11	o	PRINTED CIRCUIT BOARD, AC-136
4pcs	1-533-189-11	s	HOLDER, FUSE
1pc	3-168-180-01	o	COVER, AC BOARD
2pcs	3-646-090-11	s	RIVET, NYLON
C1	⚠1-137-107-11	s	FILM 0.047uF 20% 250V
CN1 W	⚠1-564-321-00	o	CONNECTOR, VH 2P, MALE
CN2 W	⚠1-565-395-11	o	CONNECTOR, VH 3P, MALE
CN3 W	⚠1-564-321-00	o	CONNECTOR, VH 2P, MALE
CN4 W	⚠1-580-445-11	o	CONNECTOR, VH 3P, MALE
CN5 W	⚠1-564-687-11	o	CONNECTOR, VH 3P, MALE
F1	⚠1-532-203-00	s	FUSE, TIME-LAG 2A 250V
F2	⚠1-532-203-00	s	FUSE, TIME-LAG 2A 250V
R1	⚠1-214-937-00	s	METAL 1M 1% 1/2W

AH-28 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN616 W	1-506-483-21	s	CONNECTOR, 4P, MALE
CN617 Y	1-506-481-11	s	CONNECTOR, 2P, MALE
CN618 W	1-506-481-11	s	CONNECTOR, 2P, MALE
H1001	X-3165-588-1	o	HEAD ASSY, ACE

AU-161A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-313-B	o	MOUNTED CIRCUIT BOARD, AU-161A
C1	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C2	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C3	Deleted.		
*a	1-126-162-11	s	ELECT 3.3uF 20% 50V
C4	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C5	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C6	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C7	1-130-493-00	s	MYLAR 0.068uF 5% 50V
C8	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C11	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C12	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C13	1-163-275-11	s	CERAMIC, CHIP 1000pF 5% 50V
C14	1-123-369-00	s	ELECT 4.7uF 20% 63V
C15	1-123-369-00	s	ELECT 4.7uF 20% 63V
C17	1-124-910-11	s	ELECT 47uF 20% 50V
C18	1-123-369-00	s	ELECT 4.7uF 20% 63V
C19	1-123-369-00	s	ELECT 4.7uF 20% 63V
C20	1-126-160-11	s	ELECT 1uF 20% 50V
C21	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C22	1-124-589-11	s	ELECT 47uF 20% 16V
C23	1-130-475-00	s	MYLAR 2200pF 5% 50V
C24	1-126-163-11	s	ELECT 4.7uF 20% 50V
C25	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C26	1-124-239-00	s	ELECT 6.8uF 20% 25V
C27	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C28	1-124-589-11	s	ELECT 47uF 20% 16V
C29	1-126-157-11	s	ELECT 10uF 20% 16V
C30	1-124-120-11	s	ELECT 220uF 20% 25V
C31	1-124-584-00	s	ELECT 100uF 20% 10V
C33	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C34	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C36	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C38	1-163-275-11	s	CERAMIC, CHIP 1000pF 5% 50V
C39	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C40	1-123-369-00	s	ELECT 4.7uF 20% 63V
C41	1-123-369-00	s	ELECT 4.7uF 20% 63V
C42	1-124-910-11	s	ELECT 47uF 20% 50V
C43	1-123-369-00	s	ELECT 4.7uF 20% 63V
C44	1-123-369-00	s	ELECT 4.7uF 20% 63V
C46	1-130-475-00	s	MYLAR 2200pF 5% 50V
C47	1-126-163-11	s	ELECT 4.7uF 20% 50V
C48	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C49	1-124-239-00	s	ELECT 6.8uF 20% 25V
C50	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C51	1-126-157-11	s	ELECT 10uF 20% 16V
C52	1-124-120-11	s	ELECT 220uF 20% 25V
C53	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C54	1-126-157-11	s	ELECT 10uF 20% 16V
C55	1-126-157-11	s	ELECT 10uF 20% 16V
C56	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C57	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C58	1-124-589-11	s	ELECT 47uF 20% 16V
C59	1-124-589-11	s	ELECT 47uF 20% 16V
C60	1-124-589-11	s	ELECT 47uF 20% 16V
C61	1-124-589-11	s	ELECT 47uF 20% 16V
C66	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C201	1-124-257-00	s	ELECT 2.2uF 20% 50V

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
***b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480**

(AU-161A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C202	1-124-257-00	s	ELECT 2.2uF 20% 50V
C203	1-163-275-11	s	CERAMIC, CHIP 1000pF 5% 50V
C206	1-126-163-11	s	ELECT 4.7uF 20% 50V
C207	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C209	1-124-589-11	s	ELECT 47uF 20% 16V
C211	1-126-160-11	s	ELECT 1uF 20% 50V
C212	1-126-163-11	s	ELECT 4.7uF 20% 50V
C213	1-124-234-00	s	ELECT 22uF 20% 16V
C214	1-124-589-11	s	ELECT 47uF 20% 16V
C215	1-126-163-11	s	ELECT 4.7uF 20% 50V
C216	1-130-477-00	s	MYLAR 3300pF 5% 50V
C217	1-126-163-11	s	ELECT 4.7uF 20% 50V
C220	1-126-157-11	s	ELECT 10uF 20% 16V
C223	1-130-486-00	s	MYLAR 0.018uF 10% 50V
C224	1-130-475-00	s	MYLAR 2200pF 5% 50V
C225	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C226	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C227	1-109-675-11	s	MICA 120pF 1% 500V
C228	1-109-675-11	s	MICA 120pF 1% 500V
*a	1-109-621-00	s	MICA 220pF 1% 500V
C229	1-163-143-00	s	CERAMIC, CHIP 1200pF 5% 50V
C230	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
C231	1-126-163-11	s	ELECT 4.7uF 20% 50V
C235	1-126-157-11	s	ELECT 10uF 20% 16V
C236	1-126-163-11	s	ELECT 4.7uF 20% 50V
C238	1-126-160-11	s	ELECT 1uF 20% 50V
C239	1-126-157-11	s	ELECT 10uF 20% 16V
C240	1-107-169-00	s	MICA 100pF 5% 500V
*a	Not in use.		
C303	1-163-275-11	s	CERAMIC, CHIP 1000pF 5% 50V
C306	1-126-163-11	s	ELECT 4.7uF 20% 50V
C307	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C309	1-124-589-11	s	ELECT 47uF 20% 16V
C311	1-126-160-11	s	ELECT 1uF 20% 50V
C312	1-126-163-11	s	ELECT 4.7uF 20% 50V
C313	1-124-234-00	s	ELECT 22uF 20% 16V
C314	1-124-589-11	s	ELECT 47uF 20% 16V
C315	1-126-163-11	s	ELECT 4.7uF 20% 50V
C316	1-130-477-00	s	MYLAR 3300pF 5% 50V
C317	1-126-163-11	s	ELECT 4.7uF 20% 50V
C320	1-126-157-11	s	ELECT 10uF 20% 16V
C323	1-130-486-00	s	MYLAR 0.018uF 10% 50V
C324	1-130-475-00	s	MYLAR 2200pF 5% 50V
C325	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C326	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C327	1-109-675-11	s	MICA 120pF 1% 500V
C328	1-109-675-11	s	MICA 120pF 1% 500V
*a	1-109-621-00	s	MICA 220pF 1% 500V
C329	1-163-143-00	s	CERAMIC, CHIP 1200pF 5% 50V
C330	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
C331	1-126-163-11	s	ELECT 4.7uF 20% 50V
C339	1-126-157-11	s	ELECT 10uF 20% 16V
C340	1-107-169-00	s	MICA 100pF 5% 500V
*a	Not in use.		
C402	1-136-558-11	s	FILM 3900pF 5% 630V
C403	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C404	1-130-473-00	s	MYLAR 1500pF 5% 50V
C405	1-124-589-11	s	ELECT 47uF 20% 16V
C406	1-124-234-00	s	ELECT 22uF 20% 16V
*a	Change 10uF -> 22uF.		

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Ref. No. or Q'ty	Part No.	SP	Description
C407	1-124-234-00	s	ELECT 22uF 20% 16V
C414	1-126-157-11	s	ELECT 10uF 20% 16V
C415	1-126-934-11	s	ELECT 220uF 20% 16V
C417	1-126-163-11	s	ELECT 4.7uF 20% 50V
C418	1-126-934-11	s	ELECT 220uF 20% 16V
C420	1-124-465-00	s	ELECT 0.47uF 20% 50V
*a	Not in use.		
CN302 W	1-506-468-11	s	CONNECTOR, 3P, MALE
CN303 R	1-506-468-11	s	CONNECTOR, 3P, MALE
CN307 B	1-506-473-11	s	CONNECTOR, 8P, MALE
CN308 Y	1-506-471-11	s	CONNECTOR, 6P, MALE
CN309 Y	1-506-469-11	s	CONNECTOR, 4P, MALE
CN310 B	1-506-474-11	s	CONNECTOR, 9P, MALE
CN311 Y	1-506-476-11	s	CONNECTOR, 11P, MALE
CN313 R	1-506-472-11	s	CONNECTOR, 7P, MALE
CN314 W	1-506-469-11	s	CONNECTOR, 4P, MALE
CN315 B	1-506-468-11	s	CONNECTOR, 3P, MALE
CN316 Y	1-506-468-11	s	CONNECTOR, 3P, MALE
D2	8-719-104-34	s	DIODE 1S2836
D5	8-719-400-18	s	DIODE MA152WK
D6	8-719-104-34	s	DIODE 1S2836
D7	8-719-109-93	s	DIODE RD6.2ES-B2
D8	8-719-400-18	s	DIODE MA152WK
D9	Deleted.		
*a	8-719-400-18	s	DIODE MA152WK
D201	8-719-400-18	s	DIODE MA152WK
D202	8-719-400-18	s	DIODE MA152WK
D203	8-719-400-18	s	DIODE MA152WK
D204	8-719-911-19	s	DIODE 1SS119
D302	8-719-400-18	s	DIODE MA152WK
D303	8-719-400-18	s	DIODE MA152WK
D403	8-719-109-81	s	DIODE RD4.7ES-B2
D404	8-719-400-18	s	DIODE MA152WK
D405	8-719-110-03	s	DIODE RD7.5ES-B2
*b	Change RD8.2 -> RD7.5.		
D406	8-719-400-18	s	DIODE MA152WK
D409	8-719-400-18	s	DIODE MA152WK
D410	8-719-911-19	s	DIODE 1SS119
D411	8-719-911-19	s	DIODE 1SS119
D414	8-719-110-14	s	DIODE RD9.1ES-B1
FL1	1-236-570-11	s	FILTER, BANDPASS 1.4MHz
FL2	1-236-569-11	s	FILTER, BANDPASS 1.8MHz
FL201	1-239-008-11	s	FILTER, LOW-PASS
FL301	1-239-008-11	s	FILTER, LOW-PASS
IC1	8-759-420-15	s	IC AN3932S
IC2	8-759-420-18	s	IC AN3972FC
IC3	8-759-982-03	s	IC RC5532DD
IC4	8-759-602-49	s	IC M5201P
IC5	8-759-035-93	s	IC SC7S32F
*a	Not in use.		
IC201	8-759-805-20	s	IC LA7297
IC203	8-759-602-49	s	IC M5201P
IC204	8-759-602-49	s	IC M5201P
IC301	8-759-805-20	s	IC LA7297
IC303	8-759-602-49	s	IC M5201P
IC304	8-759-602-49	s	IC M5201P
IC401	8-759-982-25	s	IC RC78L09A

NOTES: *a; S/N 10001 thru 10030   *c; S/N 10001 thru 10280   *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130   *d; S/N 10001 thru 10480

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Ref. No. or Q'ty	Part No.	SP	Description
L2	1-408-408-00	s	INDUCTOR 8.2uH
L3	1-410-482-31	s	INDUCTOR 100uH
L4	1-408-408-00	s	INDUCTOR 8.2uH
L201	1-410-088-11	s	INDUCTOR 12mH
L202	1-410-091-31	s	INDUCTOR 22mH
L301	1-410-088-11	s	INDUCTOR 12mH
L302	1-410-091-31	s	INDUCTOR 22mH
L401	1-410-120-11	s	INDUCTOR 1.2mH
Q5	8-729-901-06	s	TRANSISTOR DTA144EK
Q8	8-729-901-06	s	TRANSISTOR DTA144EK
Q10	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q12	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q13	8-729-901-01	s	TRANSISTOR DTC144EK
Q14	8-729-202-38	s	TRANSISTOR 2SC3326N
Q15	8-729-202-38	s	TRANSISTOR 2SC3326N
Q201	8-729-901-01	s	TRANSISTOR DTC144EK
Q203	8-729-901-01	s	TRANSISTOR DTC144EK
Q207	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q211	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q212	8-729-901-06	s	TRANSISTOR DTA144EK
Q213	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q303	8-729-901-01	s	TRANSISTOR DTC144EK
Q307	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q312	8-729-202-38	s	TRANSISTOR 2SC3326N
Q313	8-729-901-06	s	TRANSISTOR DTA144EK
Q314	8-729-901-01	s	TRANSISTOR DTC144EK
Q403	8-729-140-96	s	TRANSISTOR 2SD774-34
Q404	8-729-901-01	s	TRANSISTOR DTC144EK
Q406	8-729-320-60	s	TRANSISTOR 2SD788-34
Q407	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q408	8-729-140-93	s	TRANSISTOR 2SB739-34
Q409	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q414	8-729-901-01	s	TRANSISTOR DTC144EK
Q416	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q422	8-729-901-06	s	TRANSISTOR DTA144EK
R1	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R2	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R3	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R5	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R6	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R7	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R8	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R9	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R10	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R11	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R12	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R13	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R14	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R15	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R16	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R17	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R23	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R24	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R25	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R29	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R30	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R31	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R32	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R33	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R36	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R41	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R42	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R43	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R44	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R46	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R47	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R48	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R49	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R50	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R51	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R52	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R58	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R59	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R60	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R64	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R65	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R66	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R67	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R68	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R69	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R70	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R71	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R72	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R73	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R74	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R77	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R81	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R82	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R83	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R84	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R88	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R89	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R90	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
*a	Not in use.		
R201	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R202	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R203	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R204	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R206	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R207	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R208	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R209	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R211	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R213	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R214	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R217	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R218	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R219	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R221	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R222	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R223	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
*b	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R229	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R232	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R235	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R236	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R237	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

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Ref. No. or Q'ty	Part No.	SP	Description
R238	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R239	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R251	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R252	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R261	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R262	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R263	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R267	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R268	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R269	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R271	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R272	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R273	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R274	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R275	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R277	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R278	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R279	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R280	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R281	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R282	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R285	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R286	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
*b	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R287	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R288	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
*a	Not in use.		
R306	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R307	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R308	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R309	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R311	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R313	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R314	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R317	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R318	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R319	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R321	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R322	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R323	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
*b	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R329	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R332	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R335	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R336	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R337	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R338	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R339	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R350	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R351	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R361	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R362	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R363	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R367	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R368	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R369	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R371	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R372	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R373	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R374	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
*b	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R375	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
*b	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R377	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R378	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R379	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R380	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R381	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R382	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R383	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R384	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R385	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R386	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
*b	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R387	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R402	1-249-381-11	s	CARBON 1 5% 1/4W
R403	1-216-298-00	s	METAL, CHIP 2.2 5% 1/10W
R407	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R408	1-216-304-11	s	METAL, CHIP 3.3 5% 1/10W
R411	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R412	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R413	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R414	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R415	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R416	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R417	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R418	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R419	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R429	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R430	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R432	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R433	1-249-407-11	s	CARBON 150 5% 1/4W
R434	1-216-017-00	s	METAL, CHIP 47 5% 1/10W
RV1	1-238-020-11	s	RES, ADJ, CARBON 100K
RV2	1-238-019-11	s	RES, ADJ, CARBON 47K
RV3	1-230-522-11	s	RES, ADJ, METAL 4.7K
RV4	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV5	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV6	1-238-019-11	s	RES, ADJ, CARBON 47K
RV7	1-230-522-11	s	RES, ADJ, METAL 4.7K
RV8	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV9	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV10	1-238-016-11	s	RES, ADJ, CARBON 10K
RV11	1-238-016-11	s	RES, ADJ, CARBON 10K
RV201	1-238-017-11	s	RES, ADJ, CARBON 22K
RV202	1-238-019-11	s	RES, ADJ, CARBON 47K
RV203	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV204	1-238-013-11	s	RES, ADJ, CARBON 2.2K
RV205	1-238-021-11	s	RES, ADJ, CARBON 220K
RV301	1-238-017-11	s	RES, ADJ, CARBON 22K
RV302	1-238-019-11	s	RES, ADJ, CARBON 47K
RV303	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV304	1-238-013-11	s	RES, ADJ, CARBON 2.2K
RV305	1-238-021-11	s	RES, ADJ, CARBON 220K
T401	1-433-330-11	s	TRANSFORMER, BIAS OSCILLATION

NOTES: *a; S/N 10001 thru 10030   *c; S/N 10001 thru 10280   *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130   *d; S/N 10001 thru 10480

CM-14 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN001 Y	1-506-482-11	s	CONNECTOR, 3P, MALE

CN-633 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-641-584-11	o	PRINTED CIRCUIT BOARD, CN-633
C1	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
CN1 W	------------	-	HARNESS (CN-KY)
CN2 W	1-506-483-21	s	CONNECTOR, 4P, MALE
CN001	1-507-743-21	s	JACK, MINI (STEREO)
CN002	1-507-743-21	s	JACK, MINI (STEREO)
CN003	1-507-854-00	s	JACK, PHONE

CP-183 BOARD

This board includes the DUS-442 board.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6756-339-A	o	MOUNTED CIRCUIT BOARD, CP-183
C1	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C2	1-124-589-11	s	ELECT 47uF 20% 16V
C3	1-124-589-11	s	ELECT 47uF 20% 16V
C4	1-124-589-11	s	ELECT 47uF 20% 16V
C5	1-124-584-00	s	ELECT 100uF 20% 10V
C6	1-124-589-11	s	ELECT 47uF 20% 16V
C7	1-126-163-11	s	ELECT 4.7uF 20% 50V
C8	1-126-163-11	s	ELECT 4.7uF 20% 50V
C10	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C11	1-124-589-11	s	ELECT 47uF 20% 16V
C12	1-124-589-11	s	ELECT 47uF 20% 16V
C13	1-124-589-11	s	ELECT 47uF 20% 16V
C14	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C15	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C16	1-124-584-00	s	ELECT 100uF 20% 10V
CN001	1-573-580-11	s	CONNECTOR, DUAL BNC, FEMALE
CN002	1-573-590-12	s	CONNECTOR, ROUND 4P, FEMALE
CN003	1-573-590-12	s	CONNECTOR, ROUND 4P, FEMALE
CN004	1-573-744-11	s	JACK, PIN 2P, FEMALE
CN005	1-573-590-12	s	CONNECTOR, ROUND 4P, FEMALE
CN006	1-573-744-11	s	JACK, PIN 2P, FEMALE
CN007	1-691-273-11	s	JACK, PIN 1P, FEMALE
CN008	1-691-274-11	s	CONNECTOR, BNC, FEMALE
CN501 Y	1-506-483-21	o	CONNECTOR, 4P, MALE
CN502 B	1-506-488-11	o	CONNECTOR, 9P, MALE
CN503 W	1-506-487-11	s	CONNECTOR, 8P, MALE
CN504 Y	1-506-484-11	s	CONNECTOR, 5P, MALE
CN505 B	1-506-487-11	s	CONNECTOR, 8P, MALE
CN506 B	1-566-095-11	o	PIN, BOARD TO BOARD 11P (used 7P, cut 4P off)
D1	8-719-800-76	s	DIODE 1SS226
D2	8-719-800-76	s	DIODE 1SS226
D3	8-719-800-76	s	DIODE 1SS226
D4	8-719-800-76	s	DIODE 1SS226
D5	8-719-800-76	s	DIODE 1SS226
D11	8-719-157-33	s	DIODE RD6.2MB
D12	8-719-800-76	s	DIODE 1SS226
IC1	8-759-208-09	s	IC TC4052BFHB
IC2	8-759-982-04	s	IC RC5532M
IC3	8-759-710-86	s	IC NJM2233BM
L1	1-410-482-31	s	INDUCTOR 100uH
Q1	8-729-901-01	s	TRANSISTOR DTC144EK
Q2	8-729-901-01	s	TRANSISTOR DTC144EK
Q3	8-729-901-01	s	TRANSISTOR DTC144EK
Q4	8-729-901-01	s	TRANSISTOR DTC144EK
Q5	8-729-202-38	s	TRANSISTOR 2SC3326N
Q6	8-729-202-38	s	TRANSISTOR 2SC3326N
Q7	8-729-202-38	s	TRANSISTOR 2SC3326N
Q8	8-729-202-38	s	TRANSISTOR 2SC3326N
R2	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R3	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R4	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R5	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R6	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(CP-183 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R7	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R8	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R9	1-216-664-11	s	METAL, CHIP 3.6K 0.5% 1/10W
R10	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R11	1-216-664-11	s	METAL, CHIP 3.6K 0.5% 1/10W
R12	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R13	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R14	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R15	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R16	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R17	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R18	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R19	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R20	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R21	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R22	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R23	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R25	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R26	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R27	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R28	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
RJ1	1-216-295-00	s	METAL, CHIP 0
RJ2	1-216-295-00	s	METAL, CHIP 0
RJ3	1-216-295-00	s	METAL, CHIP 0
RJ4	1-216-295-00	s	METAL, CHIP 0
S1	1-570-145-11	s	SWITCH, SLIDE
S2	1-570-145-11	s	SWITCH, SLIDE

CR-39 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-319-A	o	MOUNTED CIRCUIT BOARD, CR-39
C501	1-124-589-11	s	ELECT 47uF 20% 16V
C502	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C503	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C504	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C505	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C506	1-126-162-11	s	ELECT 3.3uF 20% 50V
C507	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C508	1-126-162-11	s	ELECT 3.3uF 20% 50V
C509	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C510	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C511	1-126-162-11	s	ELECT 3.3uF 20% 50V
C512	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C513	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C514	1-163-241-11	s	CERAMIC, CHIP 39pF 5% 50V
C515	1-163-087-00	s	CERAMIC, CHIP 4pF 50V
C516	1-163-110-00	s	CERAMIC, CHIP 51pF 5% 50V
C517	1-163-229-11	s	CERAMIC, CHIP 12pF 5% 50V
C518	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C519	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C520	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C521	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C522	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C523	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C524	1-163-224-11	s	CERAMIC, CHIP 7pF 50V
C525	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C526	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C527	1-126-301-11	s	ELECT 1uF 20% 50V
C528	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C529	1-163-241-11	s	CERAMIC, CHIP 39pF 5% 50V
C530	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C531	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C532	1-163-224-11	s	CERAMIC, CHIP 7pF 50V
C533	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C534	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C535	1-163-224-11	s	CERAMIC, CHIP 7pF 50V
C536	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C537	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C538	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C539	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C540	1-126-301-11	s	ELECT 1uF 20% 50V
C541	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C542	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C543	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C544	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C545	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C546	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C547	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C554	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C555	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C601	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C602	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C604	1-163-220-11	s	CERAMIC, CHIP 3pF 50V
C605	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C606	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C607	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C608	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C609	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C610	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C611	1-163-257-11	s	CERAMIC, CHIP 180pF 5% 50V
C612	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C613	1-163-089-00	s	CERAMIC, CHIP 6pF 50V
C614	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C615	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
C616	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C625	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C626	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C627	1-131-377-00	s	TANTALUM 10uF 10% 10V
C628	1-164-492-11	s	CERAMIC, CHIP 0.15uF 10% 16V
*b	Change 0.1uF -> 0.15uF.		
C629	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C630	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C631	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C633	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C634	1-163-114-00	s	CERAMIC, CHIP 75pF 5% 50V
C635	1-163-124-00	s	CERAMIC, CHIP 200pF 5% 50V
C636	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
*a	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C637	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C638	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C639	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C640	1-126-101-11	s	ELECT 100uF 20% 16V
C641	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C642	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C643	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C644	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C645	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C646	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C647	1-164-222-11	s	CERAMIC, CHIP 0.22uF 25V
C648	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C649	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C651	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C652	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C653	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C654	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C655	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
*a	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C656	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C657	1-126-176-11	s	ELECT 220uF 20% 10V
C658	1-163-222-11	s	CERAMIC, CHIP 5pF 50V
C659	1-163-275-11	s	CERAMIC, CHIP 1000pF 5% 50V
C660	1-124-463-00	s	ELECT 0.1uF 20% 50V
C661	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C662	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C663A	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
*a	Not in use.		
C664	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C665	1-163-237-11	s	CERAMIC, CHIP 27pF 5% 50V
C666	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C667	1-163-253-11	s	CERAMIC, CHIP 120pF 5% 50V
C670	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C671	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C675	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C676	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C677	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C678	1-131-347-00	s	TANTALUM 1uF 10% 35V
C679	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C687	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C688	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C689	1-124-589-11	s	ELECT 47uF 20% 16V
C690	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C691	1-163-134-00	s	CERAMIC, CHIP 510pF 5% 50V
C692	1-126-101-11	s	ELECT 100uF 20% 16V
C693	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C694	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C695	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C697	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C701	1-163-222-11	s	CERAMIC, CHIP 5pF 50V
C702	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C703	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
*a	1-163-230-11	s	CERAMIC, CHIP 13pF 5% 50V
C704	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C712	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C713	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C715	1-124-589-11	s	ELECT 47uF 20% 16V
C716	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C717	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C718	1-124-589-11	s	ELECT 47uF 20% 16V
C720	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C725A	1-107-085-00	s	MICA 100pF 5% 50V
*a	Not in use.		
C801	1-124-589-11	s	ELECT 47uF 20% 16V
C802	1-163-113-00	s	CERAMIC, CHIP 68pF 5% 50V
C803	1-163-127-00	s	CERAMIC, CHIP 270pF 5% 50V
C804	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C805	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C806	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C807	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C808	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C809	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C810	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C811	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C812	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C813	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C814	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C815	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C816	1-126-176-11	s	ELECT 220uF 20% 10V
C817	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C818	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C819	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C820	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C821	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C822	1-163-139-00	s	CERAMIC, CHIP 820pF 5% 50V
C823	1-163-099-00	s	CERAMIC, CHIP 18pF 5% 50V
C824	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C825	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C826	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C828	1-163-115-00	s	CERAMIC, CHIP 82pF 5% 50V
C829	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C830	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C831	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C832	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C833	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C834	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C835	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C836	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V

NOTES: *a; S/N 10001 thru 10030   *c; S/N 10001 thru 10280   *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130   *d; S/N 10001 thru 10480

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C837	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C838	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C840	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C841	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C842	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C843	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C844	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C845	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C911	1-126-101-11	s	ELECT 100uF 20% 16V
C912	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C913	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C914	1-124-589-11	s	ELECT 47uF 20% 16V
C915	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C916	1-124-589-11	s	ELECT 47uF 20% 16V
C917	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C918	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C919	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C920	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C921	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C922	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C923	1-163-275-11	s	CERAMIC, CHIP 1000pF 5% 50V
C924	1-130-489-00	s	MYLAR 0.033uF 5% 50V
C926	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C927	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C928	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C929	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C930	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C931	1-163-131-00	s	CERAMIC, CHIP 390pF 5% 50V
CN212 W	1-562-686-11	o	CONNECTOR, FPC 26P, FEMALE
CN213 B	1-506-482-11	s	CONNECTOR, 3P, MALE
CV601	1-141-276-00	s	CAP, TRIMMER 20pF
CV602	1-141-365-11	s	CAP, TRIMMER 50pF
CV603	1-141-365-11	s	CAP, TRIMMER 50pF
CV800	1-141-276-00	s	CAP, TRIMMER 20pF
CV801	1-141-365-11	s	CAP, TRIMMER 50pF
CV802	1-141-365-11	s	CAP, TRIMMER 50pF
D501	8-719-400-18	s	DIODE MA152WK
D601A	8-719-104-10	s	DIODE 1SS99 *a Not in use.
D602A	8-719-104-10	s	DIODE 1SS99 *a Not in use.
D801	8-719-800-76	s	DIODE 1SS226
D802	8-719-400-18	s	DIODE MA152WK
D803	8-719-400-18	s	DIODE MA152WK
D804	8-719-800-76	s	DIODE 1SS226
D805	8-719-400-18	s	DIODE MA152WK
FL601	1-236-835-11	s	FILTER, BANDPASS 4.43MHz (REC C)
FL602	1-235-437-11	s	FILTER, BANDPASS 4.43MHz (PB C)
FL604	1-231-280-00	s	FILTER, CERAMIC 4.43MHz
FL605	1-239-325-11	s	FILTER, BANDPASS 5.06MHz
IC501	8-752-333-24	s	IC CXL1506M
IC601	8-759-710-86	s	IC NJM2233BM
IC603	8-759-634-93	s	IC M52059AFP
IC604	8-759-201-47	s	IC TA7357AP
IC608	8-759-710-86	s	IC NJM2233BM
IC901	8-759-982-10	s	IC RC7809FA
IC902	8-759-710-86	s	IC NJM2233BM

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Ref. No. or Q'ty	Part No.	SP	Description
JW601	1-217-666-31	s	RES, SHORTING 0.01 1/6W
L501	1-410-482-31	s	INDUCTOR 100uH
L502	1-410-470-11	s	INDUCTOR 10uH
L503	1-410-478-11	s	INDUCTOR 47uH
L504	1-408-414-00	s	INDUCTOR 27uH
L505	1-408-413-00	s	INDUCTOR 22uH
L506	1-408-413-00	s	INDUCTOR 22uH
L507	1-408-414-00	s	INDUCTOR 27uH
L508	1-408-414-00	s	INDUCTOR 27uH
L509	1-408-414-00	s	INDUCTOR 27uH
L510	1-408-413-00	s	INDUCTOR 22uH
L511	1-408-414-00	s	INDUCTOR 27uH
L512	1-410-470-11	s	INDUCTOR 10uH
L513	1-408-413-00	s	INDUCTOR 22uH
L514	1-408-414-00	s	INDUCTOR 27uH
L601	1-410-482-31	s	INDUCTOR 100uH
L602	1-408-411-00	s	INDUCTOR 15uH
L603	1-408-424-00	s	INDUCTOR 180uH
L604	1-410-476-11	s	INDUCTOR 33uH
L605	1-410-482-31	s	INDUCTOR 100uH
L606	1-408-425-00	s	INDUCTOR 220uH
L610	1-410-476-11	s	INDUCTOR 33uH
L611	1-408-420-00	s	INDUCTOR 82uH
L612	1-408-424-00	s	INDUCTOR 180uH
L613	1-410-476-11	s	INDUCTOR 33uH
L615	1-410-478-11	s	INDUCTOR 47uH
L618	1-410-482-31	s	INDUCTOR 100uH
L619	1-410-482-31	s	INDUCTOR 100uH
L620	1-410-482-31	s	INDUCTOR 100uH
L801	1-408-419-00	s	INDUCTOR 68uH
L802	1-408-422-00	s	INDUCTOR 120uH
L803	1-408-413-00	s	INDUCTOR 22uH
L804	1-408-420-00	s	INDUCTOR 82uH
L805	1-410-473-11	s	INDUCTOR 18uH
L806	1-410-471-11	s	INDUCTOR 12uH
L807	1-408-411-00	s	INDUCTOR 15uH
L808	1-408-411-00	s	INDUCTOR 15uH
L809	1-408-427-00	s	INDUCTOR 330uH
PS101	⚠1-532-605-00	s	LINK, IC 0.4A
Q501	8-729-901-01	s	TRANSISTOR DTC144EK
Q502	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q503	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q504	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q505	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q507	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q508	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q509	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q510	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q511	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q512	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q513	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q514	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q515	8-729-903-10	s	TRANSISTOR FMW1
Q516	8-729-903-97	s	TRANSISTOR FMS1FE
Q517	8-729-903-97	s	TRANSISTOR FMS1FE
Q518	8-729-903-10	s	TRANSISTOR FMW1
Q519	8-729-907-46	s	TRANSISTOR IMZ1

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

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Ref. No. or Q'ty	Part No.	SP	Description
Q520	8-729-903-10	s	TRANSISTOR FMW1
Q521	8-729-903-97	s	TRANSISTOR FMS1FE
Q522	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q523	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q524	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q525	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q526	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q527	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q528	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q529	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q530	8-729-903-97	s	TRANSISTOR FMS1FE
Q531	8-729-903-10	s	TRANSISTOR FMW1
Q532	8-729-903-97	s	TRANSISTOR FMS1FE
Q533	8-729-903-10	s	TRANSISTOR FMW1
Q534	8-729-907-46	s	TRANSISTOR IMZ1
Q535	8-729-903-10	s	TRANSISTOR FMW1
Q536	8-729-903-97	s	TRANSISTOR FMS1FE
Q537	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q538	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q539	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q540	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q541	8-729-901-01	s	TRANSISTOR DTC144EK
Q601	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q602	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q603	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q604	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q605	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q606	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q607	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q610	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q611	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q612	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q613	8-729-901-01	s	TRANSISTOR DTC144EK
Q614	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q615	8-729-901-01	s	TRANSISTOR DTC144EK
Q616	8-729-901-01	s	TRANSISTOR DTC144EK
Q617	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q618	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q619	8-729-901-01	s	TRANSISTOR DTC144EK
Q620	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q621	8-729-202-38	s	TRANSISTOR 2SC3326N
Q622	8-729-901-01	s	TRANSISTOR DTC144EK
Q623	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q629	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q630	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q631	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q637	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q638	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q639	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q640	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q641	8-729-901-01	s	TRANSISTOR DTC144EK
Q801	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q802	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q803	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q804	8-729-907-26	s	TRANSISTOR IMX1
Q805	8-729-903-10	s	TRANSISTOR FMW1
Q806	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q807	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q808	8-729-230-49	s	TRANSISTOR 2SC2712-YG

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Ref. No. or Q'ty	Part No.	SP	Description
Q809	8-729-903-97	s	TRANSISTOR FMS1FE
Q810	8-729-903-10	s	TRANSISTOR FMW1
Q811	8-729-903-97	s	TRANSISTOR FMS1FE
Q812	8-729-903-10	s	TRANSISTOR FMW1
Q813	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q814	8-729-907-26	s	TRANSISTOR IMX1
Q815	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q816	8-729-903-10	s	TRANSISTOR FMW1
Q817	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q818	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q819	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q820	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q821	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q822	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q823	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q824	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q825	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q826	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q827	8-729-907-26	s	TRANSISTOR IMX1
Q828	8-729-907-26	s	TRANSISTOR IMX1
Q829	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q830	8-729-907-26	s	TRANSISTOR IMX1
Q831	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q832	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q833	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q834	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q835	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q836	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q837	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q838	8-729-903-10	s	TRANSISTOR FMW1
R501	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R502	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R503	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R504	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R505	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R506	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R507	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R508	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R509	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R510	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R513	1-216-027-00	s	METAL, CHIP 120 5% 1/10W
R514	1-216-095-00	s	METAL, CHIP 82K 5% 1/10W
R515	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R516	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R517	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R519	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R520	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R521	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R522	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R523	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R524	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R525	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R526	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R527	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R528	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R529	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R530	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R531	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R532	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R533	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R534	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R535	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R536	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R537	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R538	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R539	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R540	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R541	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R542	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R543	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R544	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R545	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R546	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R547	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R548	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R549	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R550	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R551	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R552	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R553	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R554	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R555	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R556	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R557	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R558	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R559	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R560	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R561	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R562	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R563	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R564	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R565	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R566	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R567	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R568	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R569	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R570	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R571	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R572	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R573	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R574	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R575	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R576	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R577	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R578	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R579	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R580	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R581	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R582	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R583	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R584	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R585	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R586	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R587	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R588	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R589	1-216-009-00	s	METAL, CHIP 22 5% 1/10W
R590	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R591	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R592	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R593	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R594	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R595	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R596	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R597	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R598	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R599	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R601	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R602	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R603	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R604	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R605	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R606	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R607	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R608	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R609	1-216-013-00	s	METAL, CHIP 33 5% 1/10W
R610	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R611	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R612	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R613	1-216-295-00	s	METAL, CHIP 0
R614	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R615	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R616	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R617	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R618	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R619	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R620	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R621	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R622	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R623	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R624	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R625	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R626A	1-249-423-11	s	CARBON 3.3K 5% 1/4W
*a	Not in use.		
R627A	1-249-429-11	s	CARBON 10K 5% 1/4W
*a	Not in use.		
R640	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R641	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R642	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R643	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R644	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R645A	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
*f	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
*a	Not in use.		
R646	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R647	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
*a	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R648	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
*f	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
*a	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R649A	1-215-445-00	s	METAL 10K 1% 1/6W
*a	Not in use.		
R650	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R651	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R652	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R653	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R654	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480 *f; S/N 10031 thru 10480

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R655	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R656	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R657	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R658	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R659	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R660	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R661	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R663	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R664	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R665	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R666	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R667	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R668	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R669	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R670	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R671	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R672	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R673	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R674	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R675	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R676	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R677	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R678	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R679	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
*a	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R680	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R681	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
*a	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R682	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R683	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R684	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R685	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R686	1-216-013-00	s	METAL, CHIP 33 5% 1/10W
R687	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R688	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R689	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R690	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R691A	1-216-295-00	s	METAL, CHIP 0
R693	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R694	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R695	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R696	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R697	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R698	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R699	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R700	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R701	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R723	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R724	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R725	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R731	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R732	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R733	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R734	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R735	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R738	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R801	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R802	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R803	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R804	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R805	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R806	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R807	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R808	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R809	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R810	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R811	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R812	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R813	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R814	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R815	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R816	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R817	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R818	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R819	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R820	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R821	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R822	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R823	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R824	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R825	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R826	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R827	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R828	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R829	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R830	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R831	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R832	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R833	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R834	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R835	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R836	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R837	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R838	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R839	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R840	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R841	1-216-631-11	s	METAL, CHIP 150 0.5% 1/10W
R842	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R843	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R844	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R845	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R846	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R847	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R848	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R849	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R850	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R851	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R852	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R853	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R854	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R855	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R856	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R857	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R858	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R859	1-216-025-00	s	METAL, CHIP 100 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R860	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R861	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R862	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R863	1-216-633-11	s	METAL, CHIP 180 0.5% 1/10W
R864	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R865	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R866	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R867	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R868	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R869	1-216-640-11	s	METAL, CHIP 360 0.5% 1/10W
R870	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R871	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R872	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R873	1-216-640-11	s	METAL, CHIP 360 0.5% 1/10W
R874	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R875	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R876	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R877	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R878	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R879	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R880	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R881	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R882	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R883	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R884	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R885	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R886	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R887	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R888	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R889	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R890	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R891	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R892	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R893	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R894	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R895	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R896	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R897	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R898	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R899	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R900	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R901	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R902	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R903	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R904	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R905	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R906	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R907	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R931	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R935	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R936	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R937	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R938	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R939	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R941	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R942	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R943	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R944	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R945	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

(CR-39 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R946	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R949	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R950	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R951	1-216-100-00	s	METAL, CHIP 130K 5% 1/10W
R952	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R953	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R954	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R955	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R956	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R957	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R958	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R959	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R960	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R961	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R962	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R963	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R964	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R965	1-216-697-11	s	METAL, CHIP 82K 0.5% 1/10W
R966	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R967	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R970	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R971	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R972	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
RV501	1-238-012-11	s	RES, ADJ, CARBON 1K
RV502	1-238-011-11	s	RES, ADJ, CARBON 470
RV601	1-238-012-11	s	RES, ADJ, CARBON 1K
RV602	1-238-019-11	s	RES, ADJ, CARBON 47K
RV603	1-238-016-11	s	RES, ADJ, CARBON 10K
*a	1-238-017-11	s	RES, ADJ, CARBON 22K
RV604	1-238-019-11	s	RES, ADJ, CARBON 47K
RV606	1-238-017-11	s	RES, ADJ, CARBON 22K
RV800	1-238-011-11	s	RES, ADJ, CARBON 470
RV801	1-238-011-11	s	RES, ADJ, CARBON 470
RV802	1-238-011-11	s	RES, ADJ, CARBON 470
RV860	1-238-012-11	s	RES, ADJ, CARBON 1K
X601	1-567-504-81	s	OSC, CRYSTAL 4.433619MHz

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280

DC-53A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-314-B	o	MOUNTED CIRCUIT BOARD, DC-53A
1pc	X-3166-801-1	o	SHIELD (B) ASS'Y, DC BOARD
4pcs	1-533-189-11	s	HOLDER, FUSE
1pc	2-335-143-01	o	FILM, INSULATING (for Q17)
1pc	3-173-469-01	o	BUSHING, TRANSISTOR (for Q17)
1pc	3-173-478-01	o	SHIELD (A), DC BOARD
2pcs	4-886-821-11	s	SCREW, M3 CASE
6pcs	7-621-775-40	s	SCREW +B 2.6x8
C3	1-131-368-00	s	TANTALUM 3.3uF 10% 16V
C4	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C5A	1-162-714-11	s	CERAMIC 150pF 1% 50V
C6	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C7	1-126-142-11	s	ELECT 100uF 20% 35V
C8	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C9	1-126-108-11	s	ELECT 56 20% 16V
C10	1-124-755-00	s	ELECT 3300uF 20% 16V
C11	1-127-504-00	s	ALUMN SOLID 0.47uF 20% 25V
C12	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C13	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C14	1-124-927-11	s	ELECT 4.7uF 20% 100V
C15	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C16	1-131-368-00	s	TANTALUM 3.3uF 10% 16V
C17	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C18	1-126-142-11	s	ELECT 100uF 20% 35V
C19	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C20	1-126-090-11	s	ELECT 82 20% 10V
C21	1-124-568-00	s	ELECT 4700uF 20% 10V
C22	1-127-503-00	s	ALUMN SOLID 0.33uF 20% 25V
C23	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C24	1-126-373-11	s	ELECT 470uF 20% 10V
C25	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C26	1-126-373-11	s	ELECT 470uF 20% 10V
C39	1-124-489-11	s	ELECT 150uF 20% 25V
C40	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C42	1-128-300-11	s	ELECT 330uF 20% 16V
C43	1-131-347-00	s	TANTALUM 1uF 10% 35V
C101	1-126-354-11	s	ELECT 3300uF 20% 35V
C102	1-126-354-11	s	ELECT 3300uF 20% 35V
C103	1-126-354-11	s	ELECT 3300uF 20% 35V
C104	1-126-354-11	s	ELECT 3300uF 20% 35V
CN101 W	1-564-241-00	o	CONNECTOR, VH 4P, MALE
CN902 W	1-560-899-00	o	CONNECTOR, 11P, MALE
D1	8-719-302-37	s	DIODE RBV-602
D2	8-719-981-00	s	DIODE ERC81-004
D6	8-719-981-38	s	DIODE ERC62M-004
D9	8-719-312-47	s	DIODE RBA-406B
D10	8-719-160-59	s	DIODE RD13FB2
D11	8-719-021-25	s	DIODE UZM4.7X
D13	8-719-200-02	s	DIODE 10E-2
D14	8-719-200-02	s	DIODE 10E-2
IC1	8-759-937-36	s	IC TL1451ACNS
IC2	8-759-512-71	s	IC S-8054HNM
IC3	8-759-632-07	s	IC M5237L
IC4	8-759-632-07	s	IC M5237L
L1	1-408-517-00	s	COIL, CHOKE 100uH
L2	1-421-459-00	s	COIL, CHOKE 5.6uH
L3	1-424-315-11	s	COIL, CHOKE 180uH

(DC-53A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L4	1-421-459-00	s	COIL, CHOKE 5.6uH
Q1	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q2	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q3	8-729-804-08	s	TRANSISTOR 2SA1319-S
Q4	8-729-015-21	s	TRANSISTOR 2SB1204T
Q5	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q6	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q7	8-729-901-06	s	TRANSISTOR DTA144EK
Q8	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q9	8-729-804-08	s	TRANSISTOR 2SA1319-S
Q10	8-729-112-62	s	TRANSISTOR 2SA1441-K
Q11	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q12	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q17	8-729-012-04	s	TRANSISTOR 2SC4558
Q18	8-729-901-06	s	TRANSISTOR DTA144EK
Q19	8-729-230-49	s	TRANSISTOR 2SC2712-YG
R1	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R3	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R4	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R5	1-216-101-00	s	METAL, CHIP 150K 5% 1/10W
R6	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R7	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R8	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R9	⚠1-207-613-00	s	WIREWOUND 0.15 10% 3W
R10	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R11	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R12	1-216-095-00	s	METAL, CHIP 82K 5% 1/10W
R13	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R14	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R15	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R16	1-249-413-11	s	CARBON 470 5% 1/4W
R17	⚠1-216-341-11	s	METAL 0.22 5% 1W
R18	⚠1-216-341-11	s	METAL 0.22 5% 1W
R19	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R20	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R21	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R22	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R23	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R25	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R26	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R27	1-216-101-00	s	METAL, CHIP 150K 5% 1/10W
R28	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R29	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R30	1-216-095-00	s	METAL, CHIP 82K 5% 1/10W
R31	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R32	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R33	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R34	1-249-409-11	s	CARBON 220 5% 1/4W
R35	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R36	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R37	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R38	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R39	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R40	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R41	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R42	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R43	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R59	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(DC-53A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R60	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R61	1-216-295-00	s	METAL, CHIP 0
R62	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R63	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R64	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R65	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R66	1-216-605-11	s	METAL, CHIP 12 0.5% 1/10W
R67	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R68	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
RV3	1-238-012-11	s	RES, ADJ, CARBON 1K
TH1	1-800-200-00	s	THERMISTOR S-3K
TH2	1-800-200-00	s	THERMISTOR S-3K

DP-165 BOARD

Ref. No. or Q'ty	Part No.	SP	Description

This board is included in KY-219 board.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6716-647-A	o	MOUNTED CIRCUIT BOARD, DP-165
ND101	8-719-948-06	s	LED LB-202ML, GRN
ND102	8-719-948-06	s	LED LB-202ML, GRN
ND103	8-719-948-06	s	LED LB-202ML, GRN

DR-153 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
2pcs	A-6756-022-A	o	MOUNTED CIRCUIT BOARD, DR-153
C1	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C2	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C3	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
CN1 B	1-568-260-21	s	CONNECTOR, 9P, MALE
CN2 B	1-568-260-21	s	CONNECTOR, 9P, MALE
CN3 B	1-568-260-21	s	CONNECTOR, 9P, MALE
IC1	8-759-207-46	s	IC TA7262P-LB
R1	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R2	1-216-045-00	s	METAL, CHIP 680 5% 1/10W

DR-167 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6715-460-A	o	MOUNTED CIRCUIT BOARD, DR-167
2pcs	7-682-547-04	s	SCREW +B 3x6
C4	1-126-160-11	s	ELECT 1uF 20% 50V
C5	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C6	1-163-009-11	s	CERAMIC, CHIP 1000pF 10% 50V
C7	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C8	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C9	1-124-120-11	s	ELECT 220uF 20% 25V
C10	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C11	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C12	1-126-162-11	s	ELECT 3.3uF 20% 50V
C13	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
CN633 W	1-506-482-11	s	CONNECTOR, 3P, MALE
CN634 W	------------	-	HARNESS (DRUM)
CN635 W	------------	-	HARNESS (LS SENSOR)
CN636 B	1-691-285-11	s	CONNECTOR, 10P, FEMALE
CN637 B	1-691-285-11	s	CONNECTOR, 10P, FEMALE
D1	8-719-200-02	s	DIODE 10E-2
D2	8-719-200-02	s	DIODE 10E-2
IC1	8-759-234-03	s	IC TA8424F
IC2	8-719-939-11	s	PHOTOINTERRUPTER GP-2S09-B
IC3	8-719-939-11	s	PHOTOINTERRUPTER GP-2S09-B
IC4	8-719-939-11	s	PHOTOINTERRUPTER GP-2S09-B
R1	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R2	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R3	1-216-303-11	s	METAL, CHIP 3 5% 1/10W
R4	1-216-303-11	s	METAL, CHIP 3 5% 1/10W
R5	1-216-031-00	s	METAL, CHIP 180 5% 1/10W
R6	1-216-027-00	s	METAL, CHIP 120 5% 1/10W
R7	1-216-303-11	s	METAL, CHIP 3 5% 1/10W
R8	⚠1-249-377-11	s	CARBON 0.47 5% 1/4W
R18	1-216-303-11	s	METAL, CHIP 3 5% 1/10W
R19	1-216-303-11	s	METAL, CHIP 3 5% 1/10W
R20	1-216-303-11	s	METAL, CHIP 3 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

DR-176 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6715-459-A	o	MOUNTED CIRCUIT BOARD, DR-176
1pc	3-173-481-02	o	SHEET, INSULATING, DR BOARD
1pc	3-701-822-00	o	HOLDER, WIRE
3pcs	4-886-821-11	s	SCREW, M3 CASE
C1	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C3	1-124-589-11	s	ELECT 47uF 20% 16V
C4	1-163-113-00	s	CERAMIC, CHIP 68pF 5% 50V
C5	1-163-113-00	s	CERAMIC, CHIP 68pF 5% 50V
C14	1-124-589-11	s	ELECT 47uF 20% 16V
C15	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C16	1-163-009-11	s	CERAMIC, CHIP 1000pF 10% 50V
C17	1-163-009-11	s	CERAMIC, CHIP 1000pF 10% 50V
C18	1-126-163-11	s	ELECT 4.7uF 20% 50V
C20	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C21	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C22	1-130-491-00	s	MYLAR 0.047uF 5% 50V
CN631 W	1-563-493-11	s	CONNECTOR, FPC 28P, FEMALE
CN632 W	1-506-488-11	s	CONNECTOR, 9P, MALE
CN638 B	1-691-271-11	s	CONNECTOR, 10P, MALE
CN639 B	1-691-271-11	s	CONNECTOR, 10P, MALE
IC5	8-759-710-77	s	IC NJM4560MD
Q1	8-729-140-96	s	TRANSISTOR 2SD774-34
Q2	8-729-924-90	s	TRANSISTOR 2SB1370-EF
R9	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R10	⚠1-216-365-00	s	METAL 0.47 5% 2W
R11	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R12	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R13	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R14	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R15	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R16	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R17	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R21	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R22	1-216-033-00	s	METAL, CHIP 220 5% 1/10W

DUS-442 BOARD

This board is included in CP-183 board.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-641-582-11	o	PRINTED CIRCUIT BOARD, DUS-442
1pc	3-177-786-01	o	BRACKET, CONNECTOR
CN101	1-691-287-11	s	CONNECTOR, ROUND 8P, FEMALE

DUS-445 BOARD

This board is included in SS-49A board.

Ref. No. or Q'ty	Part No.	SP	Description
C318	1-126-160-11	s	ELECT 1uF 20% 50V
C319	1-126-160-11	s	ELECT 1uF 20% 50V
C350	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
CN153	1-566-095-11	o	PIN, BOARD TO BOARD 11P (used 6P, cut 5P off)
CN154	1-566-095-11	o	PIN, BOARD TO BOARD 11P (used 8P, cut 3P off)
IC307	8-759-340-13	s	IC HD14013BP
IC308	8-759-045-38	s	IC MC14538BCP
R327	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R331	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R335	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R339	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R342	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R343	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R645	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

DUS-534 BOARD

This board is included in SS-49A board.

Ref. No. or Q'ty	Part No.	SP	Description
C500	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C501	1-124-499-11	s	ELECT, NONPOLAR 1uF 20% 50V
C502	1-164-161-11	s	CERAMIC, CHIP 2200pF 10% 100V
C503	1-126-157-11	s	ELECT 10uF 20% 16V
C504	1-126-160-11	s	ELECT 1uF 20% 50V
C505	1-124-589-11	s	ELECT 47uF 20% 16V
C506	1-163-017-00	s	CERAMIC, CHIP 4700pF 10% 50V
C507	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C508	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C509	1-164-161-11	s	CERAMIC, CHIP 2200pF 10% 100V
C510	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C511	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C512	1-126-157-11	s	ELECT 10uF 20% 16V
C513	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C514	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C517	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C531	1-124-589-11	s	ELECT 47uF 20% 16V
C532	1-124-589-11	s	ELECT 47uF 20% 16V
C533	1-124-589-11	s	ELECT 47uF 20% 16V
C534	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C535	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C537	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C538	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C541	1-126-163-11	s	ELECT 4.7uF 20% 50V
C542	1-126-163-11	s	ELECT 4.7uF 20% 50V
C550	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
D500	8-719-800-76	s	DIODE 1SS226
D501	8-719-104-34	s	DIODE 1S2836
D502	8-719-800-76	s	DIODE 1SS226
D504	8-719-104-34	s	DIODE 1S2836
IC500	8-759-632-58	s	IC M52435P
IC501	8-759-000-49	s	IC MC14066BCP
IC502	8-759-038-87	s	IC MC68HC05P7BSC402047B
IC511	8-759-981-96	s	IC RC4560D
Q500	8-729-115-10	s	TRANSISTOR 2SK105A-10
Q501	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q502	8-729-901-01	s	TRANSISTOR DTC144EK
Q503	8-729-901-01	s	TRANSISTOR DTC144EK
Q504	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q509	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q515	8-729-901-01	s	TRANSISTOR DTC144EK
R500	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R501	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R502	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R503	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R504	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R505	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R506	1-216-103-00	s	METAL, CHIP 180K 5% 1/10W
R507	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R508	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R509	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R510	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R511	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R512	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R513	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W

(DUS-534 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R514	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R515	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R516	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R517	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R518	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R519	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R520	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R521	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R522	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R523	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R524	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R525	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R526	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R527	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R528	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R529	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R530	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R564	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R565	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R566	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R567	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
X500	1-577-358-21	s	RESONATOR, CERAMIC 4.00MHz

DUS-544 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-644-095-12	o	PRINTED CIRCUIT BOARD, DUS-544
C1	1-126-768-11	s	ELECT 2200uF 20% 16V
CN1 W	1-506-481-11	s	CONNECTOR, 2P, MALE

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280

DUS-592 BOARD

When serial numbers are 10031 and higher, this board is included in VO-37A board.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-478-A	o	MOUNTED CIRCIUT BOARD, DUS-592
C1	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C2	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C3	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
L1	1-410-384-31	s	INDUCTOR, CHIP 18uH
L2	1-410-390-11	s	INDUCTOR, CHIP 56uH
Q1	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q2	8-729-901-01	s	TRANSISTOR DTC144EK
Q3	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q4	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q5	8-729-901-01	s	TRANSISTOR DTC144EK
R1	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R2	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R3	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R4	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R5	1-216-295-00	s	METAL, CHIP 0
R6	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R7	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R8	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R9	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R10	1-216-095-00	s	METAL, CHIP 82K 5% 1/10W
R11	1-216-295-00	s	METAL, CHIP 0
R12	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W

HN-160 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-251-12	o	PRINTED CIRCUIT BOARD, HN-160
CN651 W	1-506-481-11	s	CONNECTOR, 2P, MALE
CN652 B	1-506-481-11	s	CONNECTOR, 2P, MALE
CN653 R	1-506-481-11	s	CONNECTOR, 2P, MALE
CN654 Y	1-506-481-11	s	CONNECTOR, 2P, MALE
CN655 B	1-506-484-11	s	CONNECTOR, 5P, MALE
CN656 W	1-506-482-11	s	CONNECTOR, 3P, MALE
CN657 Y	1-506-484-11	s	CONNECTOR, 5P, MALE
CN658 Y	1-506-487-11	s	CONNECTOR, 8P, MALE
CN659 B	1-506-481-11	s	CONNECTOR, 2P, MALE

KY-219 BOARD

This board includes the DP-165 board.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-646-A	o	MOUNTED CIRCUIT BOARD, KY-219
1pc	3-173-480-01	o	HOLDER (B), LED
C101	1-124-589-11	s	ELECT 47uF 20% 16V
C102	1-163-017-00	s	CERAMIC, CHIP 4700pF 10% 50V
C103	1-124-589-11	s	ELECT 47uF 20% 16V
C104	1-124-589-11	s	ELECT 47uF 20% 16V
C105	1-163-017-00	s	CERAMIC, CHIP 4700pF 10% 50V
C106	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C107	1-163-011-11	s	CERAMIC, CHIP 1500pF 10% 50V
C109	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C110	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C111	1-126-176-11	s	ELECT 220uF 20% 10V
C112	1-126-176-11	s	ELECT 220uF 20% 10V
C113	1-163-017-00	s	CERAMIC, CHIP 4700pF 10% 50V
C114	1-163-017-00	s	CERAMIC, CHIP 4700pF 10% 50V
C115	1-126-103-11	s	ELECT 470uF 20% 16V
CN151 R	1-506-474-11	o	CONNECTOR, 9P, MALE
CN152 R	1-506-471-11	s	CONNECTOR, 6P, MALE
CN154 W	1-506-473-11	s	CONNECTOR, 8P, MALE
CN155 B	1-691-272-11	s	CONNECTOR, 30P, MALE
CN157 B	1-506-469-11	s	CONNECTOR, 4P, MALE
D101	8-719-400-18	s	DIODE MA152WK
D102	8-719-400-18	s	DIODE MA152WK
D103	8-719-400-18	s	DIODE MA152WK
D104	8-719-400-18	s	DIODE MA152WK
D105	8-719-400-18	s	DIODE MA152WK
D106	8-719-400-18	s	DIODE MA152WK
D107	8-719-400-18	s	DIODE MA152WK
D108	8-719-400-18	s	DIODE MA152WK
D109	8-719-400-18	s	DIODE MA152WK
D110	8-719-400-18	s	DIODE MA152WK
D111	8-719-400-18	s	DIODE MA152WK
D113	8-719-802-11	s	LED TLUG154, GRN
D114	8-719-802-11	s	LED TLUG154, GRN
D115	8-719-802-11	s	LED TLUG154, GRN
D116	8-719-802-11	s	LED TLUG154, GRN
D117	8-719-984-64	s	LED SLJ-165MG5HLF, GRN
D119	8-719-802-11	s	LED TLUG154, GRN
D120	8-719-802-11	s	LED TLUG154, GRN
D122	8-719-802-11	s	LED TLUG154, GRN
D125	8-719-802-11	s	LED TLUG154, GRN
D126	8-719-802-11	s	LED TLUG154, GRN
D127	8-719-802-11	s	LED TLUG154, GRN
D128	8-719-802-11	s	LED TLUG154, GRN
D130	8-719-802-11	s	LED TLUG154, GRN
D131	8-719-802-11	s	LED TLUG154, GRN
D132	8-719-802-11	s	LED TLUG154, GRN
D133	8-719-802-11	s	LED TLUG154, GRN
D135	8-719-800-76	s	DIODE 1SS226
D137	8-719-802-11	s	LED TLUG154, GRN
D138	8-719-802-11	s	LED TLUG154, GRN
D139	8-719-802-11	s	LED TLUG154, GRN
D140	8-719-802-11	s	LED TLUG154, GRN
D141	8-719-802-11	s	LED TLUG154, GRN
D142	8-719-802-11	s	LED TLUG154, GRN
IC101	8-759-070-50	s	IC MC68HC05C4BSC403089B

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(KY-219 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC102	8-759-051-53	s	IC TD62381F
IC103	8-759-051-53	s	IC TD62381F
L101	1-421-459-00	s	COIL, CHOKE 5.6uH
Q101	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q105	8-729-904-54	s	TRANSISTOR DTB143EK
Q106	8-729-904-54	s	TRANSISTOR DTB143EK
Q107	8-729-904-54	s	TRANSISTOR DTB143EK
Q108	8-729-904-54	s	TRANSISTOR DTB143EK
Q109	8-729-904-54	s	TRANSISTOR DTB143EK
Q110	8-729-904-54	s	TRANSISTOR DTB143EK
Q111	8-729-904-54	s	TRANSISTOR DTB143EK
Q112	8-729-904-54	s	TRANSISTOR DTB143EK
Q113	8-729-904-54	s	TRANSISTOR DTB143EK
Q114	8-729-904-54	s	TRANSISTOR DTB143EK
Q115	8-729-904-54	s	TRANSISTOR DTB143EK
Q116	8-729-904-54	s	TRANSISTOR DTB143EK
Q117	8-729-904-54	s	TRANSISTOR DTB143EK
Q118	8-729-901-06	s	TRANSISTOR DTA144EK
Q119	8-729-904-54	s	TRANSISTOR DTB143EK
Q120	8-729-904-54	s	TRANSISTOR DTB143EK
Q121	8-729-904-54	s	TRANSISTOR DTB143EK
R101	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R102	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R103	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R104	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R105	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R106	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R107	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R108	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R109	1-249-408-11	s	CARBON 180 5% 1/4W
R110	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R111	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R112	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R113	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R119	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R120	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R121	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R122	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R123	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R124	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R125	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R126	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R127	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R128	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R129	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R130	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R131	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R132	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R133	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R134	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R135	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R136	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R137	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R138	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R139	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R140	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R141	1-216-025-00	s	METAL, CHIP 100 5% 1/10W

(KY-219 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R142	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R143	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R145	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R147	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R148	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R149	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R150	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R151	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R152	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R153	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R154	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R155	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R156	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R157	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R158	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R159	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R160	1-249-409-11	s	CARBON 220 5% 1/4W
R161	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R162	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R163	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R164	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R165	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R167	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R168	1-249-408-11	s	CARBON 180 5% 1/4W
RV101	1-241-802-11	s	RES, VAR, CARBON 100K
S101	1-552-539-00	s	SWITCH, PUSH
S102	1-570-472-11	s	SWITCH, PUSH
S103	1-570-472-11	s	SWITCH, PUSH
S104	1-572-992-11	s	SWITCH, SLIDE
S105	1-572-991-11	s	SWITCH, SLIDE
S106	1-552-539-00	s	SWITCH, PUSH
S108	1-570-472-11	s	SWITCH, PUSH
S109	1-570-472-11	s	SWITCH, PUSH
S110	1-552-539-00	s	SWITCH, PUSH
S111	1-552-539-00	s	SWITCH, PUSH
S112	1-552-539-00	s	SWITCH, PUSH
S113	1-570-472-11	s	SWITCH, PUSH
S114	1-552-539-00	s	SWITCH, PUSH
S115	1-570-472-11	s	SWITCH, PUSH
S116	1-552-539-00	s	SWITCH, PUSH
S117	1-570-472-11	s	SWITCH, PUSH
S118	1-572-993-11	s	SWITCH, SLIDE
S119	1-572-991-11	s	SWITCH, SLIDE
S120	1-572-993-11	s	SWITCH, SLIDE
X101	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

LD-35 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
CN620 W	1-506-481-11	s	CONNECTOR, 2P, MALE

LE-80 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-247-11	o	PRINTED CIRCUIT BOARD, LE-80
1pc	3-167-028-02	o	HOLDER, LED
1pc	8-719-985-00	s	LED GL451VS1, IR

LE-86 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-250-11	o	PRINTED CIRCUIT BOARD, LE-86
1pc	8-719-821-22	s	LED TL0221, ORG

RP-62A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-316-A	o	MOUNTED CIRCUIT BOARD, RP-62A
1pc	3-173-468-01	o	SHEET, INSULATING, RP
1pc	3-173-491-02	o	SHIELD (A), RP
1pc	3-173-492-01	o	SHIELD (B), RP
C1	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C2	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C3	Deleted.		
*c	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C3A	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
*c	Not in use.		
C4	1-124-589-11	s	ELECT 47uF 20% 16V
C5	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C101	1-126-163-11	s	ELECT 4.7uF 20% 50V
C102	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C103	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C104	1-124-589-11	s	ELECT 47uF 20% 16V
C105	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C106	1-124-463-00	s	ELECT 0.1uF 20% 50V
C107	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C108	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C109	1-163-089-00	s	CERAMIC, CHIP 6pF 50V
C111	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C112	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C113	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C114	Deleted.		
*c	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C115	Deleted.		
*c	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C201	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C203	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C204	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C205	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C207	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C209	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C210	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C211	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C213	1-164-346-11	s	CERAMIC, CHIP 1uF 16V
*a	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C214	1-126-153-11	s	ELECT 22uF 20% 6.3V
C216	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C217	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C218	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C219	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C220	1-163-253-11	s	CERAMIC, CHIP 120pF 5% 50V
C221	1-163-127-00	s	CERAMIC, CHIP 270pF 5% 50V
C222	1-163-131-00	s	CERAMIC, CHIP 390pF 5% 50V
C223	1-164-161-11	s	CERAMIC, CHIP 2200pF 10% 100V
C224	1-126-153-11	s	ELECT 22uF 20% 6.3V
C225	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C226	1-126-153-11	s	ELECT 22uF 20% 6.3V
C227	Deleted.		
*b	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C230	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C231	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C232	1-163-237-11	s	CERAMIC, CHIP 27pF 5% 50V
C233	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C234	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C235	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C236	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(RP-62A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C237	1-163-241-11	s	CERAMIC, CHIP 39pF 5% 50V
C238	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C239	1-163-229-11	s	CERAMIC, CHIP 12pF 5% 50V
C240	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C241	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C242	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C243	1-163-237-11	s	CERAMIC, CHIP 27pF 5% 50V
C244	1-163-241-11	s	CERAMIC, CHIP 39pF 5% 50V
C245	1-163-237-11	s	CERAMIC, CHIP 27pF 5% 50V
C246	1-163-229-11	s	CERAMIC, CHIP 12pF 5% 50V
C247	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C248	1-163-115-00	s	CERAMIC, CHIP 82pF 5% 50V
C249	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C250	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C251	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C252	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C253	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C254	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C255	1-163-087-00	s	CERAMIC, CHIP 4pF 50V
C256	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C257	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C258	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C259	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C260	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C261	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C262	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C263	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C264	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C265	1-124-589-11	s	ELECT 47uF 20% 16V
C266	1-163-085-00	s	CERAMIC, CHIP 2pF 50V
C267	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C270	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C271A	Deleted.		
*a	1-164-346-11	s	CERAMIC, CHIP 1uF 16V
C272A	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C273A	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C274A	1-162-207-31	s	CERAMIC 22pF 5% 50V
*c	Change MICA -> CERAMIC.		
C275A	1-162-207-31	s	CERAMIC 22pF 5% 50V
*c	Change MICA -> CERAMIC.		
C301	1-124-589-11	s	ELECT 47uF 20% 16V
C302	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C303	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
*c	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C304	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C305	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C306	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C307	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C308A	1-102-110-00	s	CERAMIC 220pF 10% 50V
*c	Not in use.		
C319	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C320	1-163-143-00	s	CERAMIC, CHIP 1200pF 5% 50V
C323	1-124-463-00	s	ELECT 0.1uF 20% 50V
C324	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C325	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C326	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C327	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C328	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C329	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V

(RP-62A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C330	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C331	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C332	1-126-160-11	s	ELECT 1uF 20% 50V
C333	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C334	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C335	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C336	1-163-275-11	s	CERAMIC, CHIP 1000pF 5% 50V
C337	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C339	1-126-157-11	s	ELECT 10uF 20% 16V
C340	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C341	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C342	1-126-163-11	s	ELECT 4.7uF 20% 50V
C350	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C351	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C352	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C353	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C354	1-126-163-11	s	ELECT 4.7uF 20% 50V
C355	1-124-589-11	s	ELECT 47uF 20% 16V
C356	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
*c	1-163-089-00	s	CERAMIC, CHIP 6pF 50V
CN801 B	1-563-590-11	o	CONNECTOR, FPC 13P, FEMALE
CN802 W	1-506-486-11	s	CONNECTOR, 7P, MALE
CN803 R	1-506-485-11	s	CONNECTOR, 6P, MALE
CN804 W	1-564-031-00	o	CONNECTOR, 6P, MALE
CN805 Y	1-506-485-11	s	CONNECTOR, 6P, MALE
CN806 W	1-506-484-11	s	CONNECTOR, 5P, MALE
CN807 W	1-506-485-11	s	CONNECTOR, 6P, MALE
CN808 W	1-506-482-11	s	CONNECTOR, 3P, MALE
D201	8-719-400-18	s	DIODE MA152WK
D202	8-719-400-18	s	DIODE MA152WK
D203	8-719-400-18	s	DIODE MA152WK
D301	8-719-400-18	s	DIODE MA152WK
DL201	1-415-858-11	s	DELAY LINE 35nS
DL202	1-415-858-11	s	DELAY LINE 35nS
IC101	8-759-420-60	s	IC AN6392L
IC201	8-759-320-52	s	IC HA118019NT
IC202	8-759-012-00	s	IC MC10H116M
IC301	8-759-320-55	s	IC HA12115MP
IC302	8-759-998-32	s	IC CXD2107M
L101	1-408-968-21	s	INDUCTOR 6.8uH
L102	1-410-149-11	s	INDUCTOR 39uH (SHIELD TYPE)
L103	1-408-982-11	s	INDUCTOR 100uH
L200	1-408-982-11	s	INDUCTOR 100uH
L201	1-408-948-00	s	INDUCTOR 220uH
L202	1-408-976-21	s	INDUCTOR 33uH
L203	1-408-971-21	s	INDUCTOR 12uH
L204	1-408-977-21	s	INDUCTOR 39uH
L205	1-408-948-00	s	INDUCTOR 220uH
L206	1-408-970-21	s	INDUCTOR 10uH
L207	1-408-978-21	s	INDUCTOR 47uH
L208	1-408-973-21	s	INDUCTOR 18uH
L209	1-408-978-21	s	INDUCTOR 47uH
L210	1-408-982-11	s	INDUCTOR 100uH
L211	1-408-982-11	s	INDUCTOR 100uH
L212	1-408-974-21	s	INDUCTOR 22uH
L213	1-408-982-11	s	INDUCTOR 100uH
L214	1-408-972-21	s	INDUCTOR 15uH
L215	1-408-970-21	s	INDUCTOR 10uH

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(RP-62A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L301	1-408-989-21	s	INDUCTOR 470uH
L302	1-410-140-11	s	INDUCTOR 6.8uH (SHIELD TYPE)
L303	1-408-982-11	s	INDUCTOR 100uH
L304	1-408-982-11	s	INDUCTOR 100uH
L305	1-408-982-11	s	INDUCTOR 100uH
L306	1-408-970-21	s	INDUCTOR 10uH
Q101	8-729-202-38	s	TRANSISTOR 2SC3326N
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q103	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q104	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q105	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q201	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q202	8-729-901-01	s	TRANSISTOR DTC144EK
Q203	8-729-901-01	s	TRANSISTOR DTC144EK
Q204	8-729-901-01	s	TRANSISTOR DTC144EK
Q210	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q211	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q212	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q213	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q214	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q215	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q216	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q217	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q218	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q219	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q220	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q221	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q222	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q223	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q301	8-729-901-01	s	TRANSISTOR DTC144EK
Q302	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q303	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q304	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q310	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q311	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q312	8-729-901-01	s	TRANSISTOR DTC144EK
Q313	8-729-901-01	s	TRANSISTOR DTC144EK
Q314	8-729-901-06	s	TRANSISTOR DTA144EK
Q315	8-729-901-01	s	TRANSISTOR DTC144EK
R101	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R102	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R103	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R104	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R105	1-216-013-00	s	METAL, CHIP 33 5% 1/10W
R106	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R107	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R108	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R109	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R110	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R111	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R112	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R113	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R114	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R115	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R116	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R117	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R118	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R120A	1-216-021-00	s	METAL, CHIP 68 5% 1/10W
	*c		Not in use.

(RP-62A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R121A	1-216-021-00	s	METAL, CHIP 68 5% 1/10W
	*c		Not in use.
R201	1-216-632-11	s	METAL, CHIP 160 0.5% 1/10W
R202	1-216-630-11	s	METAL, CHIP 130 0.5% 1/10W
R203	1-216-630-11	s	METAL, CHIP 130 0.5% 1/10W
R204	1-216-027-00	s	METAL, CHIP 120 5% 1/10W
R205	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R206	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R207	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R208	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R209	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R210	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R211	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R212	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R213	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R214	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R215	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R216	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R217	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R218	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R219	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R220	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R221	1-216-295-00	s	METAL, CHIP 0
R222A	1-216-295-00	s	METAL, CHIP 0
	*a		Not in use.
R230	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R231	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R232	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R233	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R234	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R235	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R236	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R237	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R238	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R239	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R240	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R241	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R242	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R243	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R244	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R245	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R246	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R247	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R248	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R249	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R250	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R251	1-216-039-00	s	METAL, CHIP 390 5% 1/10W
R252	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R253	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R254	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R255	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R256	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R257	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R258	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R259	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R260	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R261	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R262	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R263	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(RP-62A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R264	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R265	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R266	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R267	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R268	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R269	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R270	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R271	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R272	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R273	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R274	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R275	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R276	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R277	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R278	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R279	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R280	1-216-636-11	s	METAL, CHIP 240 0.5% 1/10W
R281	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R282	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
*b	Change 1.2K -> 1.8K.		
R283	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R284	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R285	1-216-636-11	s	METAL, CHIP 240 0.5% 1/10W
R286	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R287	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
*b	Change 1.2K -> 1.8K.		
R288	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R289	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R290	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R291	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R292	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R293	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R301	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R302	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R303	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R304	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R305	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R306	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R308	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R309	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R320	1-216-019-00	s	METAL, CHIP 56 5% 1/10W
R322	1-216-001-00	s	METAL, CHIP 10 5% 1/10W
R323	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R324	1-216-304-11	s	METAL, CHIP 3.3 5% 1/10W
R325	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R327	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R328	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R329	1-216-304-11	s	METAL, CHIP 3.3 5% 1/10W
R330	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R331	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R340	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R341	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R342	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R343	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R344	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R345	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R346	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R348	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R349	1-216-295-00	s	METAL, CHIP 0
*c	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R350	Deleted.		
*c	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
RV201	1-241-136-11	s	RES, ADJ, CARBON 10K

SE-151 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-245-13	o	PRINTED CIRCUIT BOARD, SE-151
1pc	1-506-467-11	s	CONNECTOR, 2P, MALE
1pc	3-167-013-02	o	HOLDER, ST SENSOR
1pc	8-729-926-31	s	PHOTOTRANSISTOR PT483F1S

SE-152 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-246-12	o	PRINTED CIRCUIT BOARD, SE-152
1pc	3-167-013-02	o	HOLDER, ST SENSOR
1pc	8-729-926-31	s	PHOTOTRANSISTOR PT483F1S

SE-159 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-249-11	o	PRINTED CIRCUIT BOARD, SE-159
1pc	1-806-232-21	s	DETECTOR MB-1102/S.N
1pc	3-167-036-01	o	HOLDER, DETECTOR

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

SS-49A BOARD

This board of includes DUS-445 and DUS-534 boards.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-315-A	o	MOUNTED CIRCUIT BOARD, SS-49A
3pcs	3-682-057-11	s	SPACER (SMALL)
2pcs	4-924-098-31	o	HOLDER, PC BOARD
2pcs	4-886-821-11	s	SCREW, M3 CASE
C101	1-126-993-11	s	ELECT 100uF 20% 16V
C102	1-126-935-11	s	ELECT 470uF 20% 16V
C103	1-125-498-11	s	DOUBLE LAYERS 1.0F 5.5V
C104	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C105	1-124-234-00	s	ELECT 22uF 20% 16V
C106	1-126-993-11	s	ELECT 100uF 20% 16V
C107	1-126-157-11	s	ELECT 10uF 20% 16V
C108	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C109	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C110	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C111	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C113	1-124-589-11	s	ELECT 47uF 20% 16V
C115	1-124-589-11	s	ELECT 47uF 20% 16V
C118	1-124-234-00	s	ELECT 22uF 20% 16V
C119	1-124-257-00	s	ELECT 2.2uF 20% 50V
C120	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C121	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C122	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C123	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C124	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C125	1-130-471-00	s	MYLAR 1000pF 5% 50V
C129	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C130	1-130-471-00	s	MYLAR 1000pF 5% 50V
C139	1-124-589-11	s	ELECT 47uF 20% 16V
C140	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C141	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C142	1-124-589-11	s	ELECT 47uF 20% 16V
C143	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C144	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C146	1-124-589-11	s	ELECT 47uF 20% 16V
C147	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C148	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C149	1-126-157-11	s	ELECT 10uF 20% 16V
C150	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C154	1-130-471-00	s	MYLAR 1000pF 5% 50V
C155	1-126-162-11	s	ELECT 3.3uF 20% 50V
C156	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C157	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C167	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C168	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C169	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C170	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C171	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C180	1-126-163-11	s	ELECT 4.7uF 20% 50V
C301	1-124-589-11	s	ELECT 47uF 20% 16V
C302	1-126-162-11	s	ELECT 3.3uF 20% 50V
C303	1-126-162-11	s	ELECT 3.3uF 20% 50V
C304	1-126-157-11	s	ELECT 10uF 20% 16V
C305	1-126-157-11	s	ELECT 10uF 20% 16V
C306	1-126-162-11	s	ELECT 3.3uF 20% 50V
C307	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C308	1-124-589-11	s	ELECT 47uF 20% 16V
C309	1-124-589-11	s	ELECT 47uF 20% 16V

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Ref. No. or Q'ty	Part No.	SP	Description
C310	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C311	1-124-242-00	s	ELECT 33uF 20% 25V
C312	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C313	1-124-242-00	s	ELECT 33uF 20% 25V
C314	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C315	1-124-242-00	s	ELECT 33uF 20% 25V
C316	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C317	1-124-242-00	s	ELECT 33uF 20% 25V
C320	1-124-589-11	s	ELECT 47uF 20% 16V
C321	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C322	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C323	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
C324	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C325	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C326	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C327	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C328	1-126-993-11	s	ELECT 100uF 20% 16V
C329	1-163-017-00	s	CERAMIC, CHIP 4700pF 10% 50V
C330	1-126-934-11	s	ELECT 220uF 20% 16V
C331	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C332	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C333	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C334	1-126-993-11	s	ELECT 100uF 20% 16V
C335	1-163-017-00	s	CERAMIC, CHIP 4700pF 10% 50V
C336	1-126-934-11	s	ELECT 220uF 20% 16V
C337	1-126-768-11	s	ELECT 2200uF 20% 16V
C338	1-124-589-11	s	ELECT 47uF 20% 16V
C339	1-124-465-00	s	ELECT 0.47uF 20% 50V
C340	1-124-465-00	s	ELECT 0.47uF 20% 50V
C341	1-163-104-00	s	CERAMIC, CHIP 30pF 5% 50V
C342	1-163-104-00	s	CERAMIC, CHIP 30pF 5% 50V
C343	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C344	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C345	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C346	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C347	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C348	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C349	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C351	1-124-465-00	s	ELECT 0.47uF 20% 50V
C352	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C353	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C354	1-126-160-11	s	ELECT 1uF 20% 50V
C355	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C363	1-126-993-11	s	ELECT 100uF 20% 16V
C364	1-126-993-11	s	ELECT 100uF 20% 16V
C365	1-126-993-11	s	ELECT 100uF 20% 16V
C366	1-126-993-11	s	ELECT 100uF 20% 16V
C367	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C515	1-130-471-00	s	MYLAR 1000pF 5% 50V
C516	1-130-471-00	s	MYLAR 1000pF 5% 50V
C518	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C519	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C520	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C521	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C522	1-163-809-11	s	CERAMIC, CHIP 0.047uF 10% 25V
C523	1-124-589-11	s	ELECT 47uF 20% 16V
C524	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C525	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C526	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

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Ref. No. or Q'ty	Part No.	SP	Description
C527	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C528	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C529	1-126-993-11	s	ELECT 100uF 20% 16V
C530	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C536	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C539	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C540	1-124-589-11	s	ELECT 47uF 20% 16V
C545	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C546	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C547	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C548	1-126-516-11	s	ELECT 120uF 20% 16V
C601	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C602	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C603	1-126-160-11	s	ELECT 1uF 20% 50V
C604	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C605	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C606	1-126-993-11	s	ELECT 100uF 20% 16V
C607	1-126-163-11	s	ELECT 4.7uF 20% 50V
C670	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
CN100 W	1-560-899-00	o	CONNECTOR, 11P, MALE
CN101 W	1-563-461-11	o	CONNECTOR, FPC 28P, FEMALE
CN102 Y	1-506-473-11	o	CONNECTOR, 8P, MALE
CN103 B	1-506-470-11	s	CONNECTOR, 5P, MALE
CN105 W	------------	-	HARNESS (CASSECON)
CN106 W	------------	-	HARNESS (LD MOTOR)
CN107 W	1-506-468-11	s	CONNECTOR, 3P, MALE
CN108 W	1-506-467-11	s	CONNECTOR, 2P, MALE
CN110 R	1-506-477-11	s	CONNECTOR, 12P, MALE
CN111 R	1-506-474-11	s	CONNECTOR, 9P, MALE
CN114 W	1-506-476-11	s	CONNECTOR, 11P, MALE
CN116 Y	1-506-478-11	s	CONNECTOR, 13P, MALE
CN117 B	1-506-469-11	s	CONNECTOR, 4P, MALE
CN118 R	1-506-468-11	s	CONNECTOR, 3P, MALE
CN123 W	1-506-474-11	s	CONNECTOR, 9P, MALE
CN124 W	------------	-	HARNESS (T-REEL)
CN130 B	1-506-471-11	s	CONNECTOR, 6P, MALE
CN131 B	1-506-475-11	s	CONNECTOR, 10P, MALE
CN132 R	1-506-471-11	s	CONNECTOR, 6P, MALE
CN133 B	1-506-468-11	s	CONNECTOR, 3P, MALE
CN134 W	1-562-883-11	o	CONNECTOR, FPC 20P, FEMALE
CN140 W	------------	-	HARNESS (AU CONT)
CN142 W	------------	-	HARNESS (AU REG)
CN810	1-691-271-11	s	CONNECTOR, 10P, MALE
CN811	1-691-271-11	s	CONNECTOR, 10P, MALE
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-104-34	s	DIODE 1S2836
D104	8-719-200-02	s	DIODE 10E-2
D105	8-719-200-02	s	DIODE 10E-2
D108	8-719-938-75	s	DIODE SB05-05CP
*a	8-719-031-57	s	DIODE SB05-05NP
D112	8-719-109-68	s	DIODE RD3.6ES-B1
D113	8-719-104-34	s	DIODE 1S2836
D116	8-719-109-84	s	DIODE RD5.1ES-B1
D119	8-719-911-19	s	DIODE 1SS119
D120A	8-719-911-19	s	DIODE 1SS119

*a Not in use.

Ref. No. or Q'ty	Part No.	SP	Description
D301	8-719-800-76	s	DIODE 1SS226
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-106-16	s	DIODE RD6.8M-B1

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Ref. No. or Q'ty	Part No.	SP	Description
D308	8-719-400-18	s	DIODE MA152WK
D310	8-719-106-43	s	DIODE RD9.1M-B1
D311	8-719-982-04	s	DIODE ERB81-004
D312	8-719-982-04	s	DIODE ERB81-004
D313	8-719-200-02	s	DIODE 10E-2
D314	8-719-200-02	s	DIODE 10E-2
D315	8-719-400-18	s	DIODE MA152WK
D316	8-719-106-16	s	DIODE RD6.8M-B1
D317	8-719-160-68	s	DIODE RD18FB2
D318	8-719-160-68	s	DIODE RD18FB2
D319	8-719-400-18	s	DIODE MA152WK
D320	8-719-911-19	s	DIODE 1SS119
D321	8-719-800-76	s	DIODE 1SS226
D326	8-719-110-16	s	DIODE RD10ES-B1
D327	8-719-200-02	s	DIODE 10E-2
D328	8-719-200-02	s	DIODE 10E-2
D329	8-719-200-02	s	DIODE 10E-2
D505	8-719-104-34	s	DIODE 1S2836
D506	8-719-104-34	s	DIODE 1S2836
D508	8-719-104-34	s	DIODE 1S2836
D509	8-719-104-34	s	DIODE 1S2836
IC101	8-752-840-67	s	IC CXP80624-436Q
IC102	8-759-720-81	s	IC M6M80011AP
IC103	8-759-745-60	s	IC NJM4560D
IC104	8-759-512-71	s	IC S-8054HNM
IC106	8-759-745-60	s	IC NJM4560D
IC107	8-759-729-03	s	IC NJM2903D
IC108	8-759-135-80	s	IC uPC358C
IC109	8-759-983-45	s	IC BA6238A
IC111	8-759-140-53	s	IC uPD4053BC
IC112	8-759-711-41	s	IC NJM2220S
IC114	8-759-917-43	s	IC SN74HC138AN
IC115	8-759-202-61	s	IC TC4094BP
IC116	8-759-512-71	s	IC S-8054HNM
IC301	8-759-912-77	s	IC LM324N
IC302	8-759-912-77	s	IC LM324N
IC303	8-759-140-53	s	IC uPD4053BC
IC304	8-759-984-03	s	IC LM339N
IC305	8-759-729-03	s	IC NJM2903D
IC306	8-759-091-41	s	IC uPD75108CW-W27
IC309	8-759-729-03	s	IC NJM2903D
IC310	8-759-135-80	s	IC uPC358C
IC311	8-759-912-77	s	IC LM324N
IC312	8-759-135-80	s	IC uPC358C
IC314	8-759-140-53	s	IC uPD4053BC
IC315	8-759-140-53	s	IC uPD4053BC
IC503	8-759-708-05	s	IC NJM78L05A
IC504	8-759-916-20	s	IC SN74HC14AN
IC505	8-759-745-60	s	IC NJM4560D
IC506	8-759-040-70	s	IC MC14070BCP
IC508	8-759-340-13	s	IC HD14013BP
IC509	8-759-745-60	s	IC NJM4560D
IC510	8-759-140-53	s	IC uPD4053BC
IC512	8-759-140-53	s	IC uPD4053BC
IC513	8-759-729-03	s	IC NJM2903D
IC514	8-759-745-60	s	IC NJM4560D
IC601	8-759-729-03	s	IC NJM2903D

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

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Ref. No. or Q'ty	Part No.	SP	Description
L101	1-410-482-31	s	INDUCTOR 100uH
L301	1-408-519-00	s	COIL, CHOKE 420uH
L302	1-408-519-00	s	COIL, CHOKE 420uH
PS101	⚠1-532-685-00	s	LINK, IC 0.8A
PS105	⚠1-532-637-00	s	LINK, IC 1.0A
PS301	⚠1-532-685-00	s	LINK, IC 0.8A
Q101	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q103	8-729-901-06	s	TRANSISTOR DTA144EK
Q104	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q107	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q108	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q109	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q110	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q114	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q115	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q116	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q117	8-729-901-00	s	TRANSISTOR DTC124EK
Q118	8-729-901-00	s	TRANSISTOR DTC124EK
Q119	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q120	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q121	8-729-901-01	s	TRANSISTOR DTC144EK
Q128	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q129	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q130	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q131	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q134	8-729-901-01	s	TRANSISTOR DTC144EK
Q301	8-729-901-01	s	TRANSISTOR DTC144EK
Q302	8-729-901-01	s	TRANSISTOR DTC144EK
Q303	8-729-901-01	s	TRANSISTOR DTC144EK
Q304	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q305	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q306	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q307	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q308	8-729-804-87	s	TRANSISTOR 2SB1142-T
Q309	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q310	8-729-804-87	s	TRANSISTOR 2SB1142-T
Q311	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q312	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q313	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q314	8-729-320-60	s	TRANSISTOR 2SD788-34
Q315	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q316	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q317	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q318	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q319	8-729-320-60	s	TRANSISTOR 2SD788-34
Q320	8-729-901-01	s	TRANSISTOR DTC144EK
Q321	8-729-901-01	s	TRANSISTOR DTC144EK
Q322	8-729-901-01	s	TRANSISTOR DTC144EK
Q323	8-729-202-38	s	TRANSISTOR 2SC3326N
Q331	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q332	8-729-901-01	s	TRANSISTOR DTC144EK
Q333	8-729-901-01	s	TRANSISTOR DTC144EK
Q334	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q335	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q336	8-729-901-01	s	TRANSISTOR DTC144EK
Q337	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q338	8-729-320-60	s	TRANSISTOR 2SD788-34

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Ref. No. or Q'ty	Part No.	SP	Description
Q340	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q341	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q342	8-729-320-60	s	TRANSISTOR 2SD788-34
Q346	8-729-889-40	s	TRANSISTOR 2SD894
Q347	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q348	8-729-811-11	s	TRANSISTOR 2SD1111
Q349	8-729-901-06	s	TRANSISTOR DTA144EK
Q350	8-729-901-01	s	TRANSISTOR DTC144EK
Q351	8-729-901-01	s	TRANSISTOR DTC144EK
Q352	8-729-900-52	s	TRANSISTOR DTC114YK
Q506	8-729-105-73	s	TRANSISTOR 2SK523-L2
Q507	8-729-901-01	s	TRANSISTOR DTC144EK
Q510	8-729-901-01	s	TRANSISTOR DTC144EK
Q516	8-729-901-01	s	TRANSISTOR DTC144EK
R101	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R102	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R103	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R104	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R105	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R106	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R107	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R108	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R109	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R110	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R111	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R112	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R114	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R115	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R116	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R119	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R120	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R121	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R123	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R124	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R125	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R126	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R127	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R128	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R129	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R130	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R131	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R132	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R133	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R134	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R135	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R136	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R137	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R138	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R139	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R140	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R141	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R142	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R143	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R144	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R145	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R146	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R147	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R148	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R149	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(SS-49A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R150	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R151	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R152	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R153	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R154	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R155	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R156	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R157	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R158	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R159	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R160	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R161	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R162	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R163	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R164	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R165	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R166	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R167	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R168	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R169	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R170	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R171	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R172	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R173	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R174	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R175	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R176	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R177	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R178	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R179	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R180	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R181	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R182	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R183	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R184	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R185	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R186	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R187	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R188	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R194	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R195	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R196	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R197	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R198	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R199	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R200	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R201	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R202	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R203	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R204	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R205	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R206	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R207	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R208	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R209	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R210	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R211	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R212	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R213	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W

(SS-49A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R214	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R215	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R217	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R218	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R219	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R220	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R221	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R222	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R223	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R224	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R226	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R227	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R228	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R229	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R230	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R231	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R232	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R233	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R234	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R235	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R236	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R237	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R238	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R239	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R240	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R241	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R242	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R243	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R245	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R247	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R250	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R255	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R268	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R269	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R270	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R271	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R272	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R273	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R274	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R275	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R276	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R277	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R278	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R280	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R281	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R282	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R283	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R284	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R285	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R289	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R290	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R291	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R292	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R293	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R299	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R301	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R302	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R303	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R304	1-216-045-00	s	METAL, CHIP 680 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(SS-49A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R305	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R306	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R307	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R309	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R310	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R311	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R312	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R313	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R314	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R315	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R316	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R317	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R318	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R319	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R320	1-216-031-00	s	METAL, CHIP 180 5% 1/10W
R321	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R322	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R324	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R325	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R326	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R328	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R329	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R330	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R332	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R333	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R334	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R336	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R337	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R338	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R340	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R341	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R345	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R346	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R349	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R350	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R351	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R352	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R353	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R354	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R355	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R356	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R357	1-216-109-00	s	METAL, CHIP 330K 5% 1/10W
R358	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R359	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R360	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R361	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R362	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R363	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R364	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R366	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R367	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R368	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R370	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R371	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R372	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R373	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R375	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R376	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R377	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W

(SS-49A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R378	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R379	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R380	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R381	⚠1-216-365-00	s	METAL 0.47 5% 2W
R383	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R384	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R385	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R387	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R388	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R389	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R390	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R392	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R393	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R394	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R395	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R396	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R397	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R398	⚠1-216-365-00	s	METAL 0.47 5% 2W
R399	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R400	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R401	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R402	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R403	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R404	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R405	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R406	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R407	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R408	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R409	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R410	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R411	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R412	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R413	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R414	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R415	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R416	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R417	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R418	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R419	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R420	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R421	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R422	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R423	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R424	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R425	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R426	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R427	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R428	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R429	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R430	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R431	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R432	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R433	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R434	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R435	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R436	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R437	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R438	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R439	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(SS-49A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R440	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R441	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R442	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R443	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R444	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R445	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R446	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R447	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R448	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R449	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R450	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R451	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R452	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R453	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R454	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R455	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R456	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R457	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R458	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R459	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R460	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R461	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R462	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R463	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R464	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R465	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R466	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R467	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R468	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R469	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R470	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R471	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R472	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R473	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R474	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R475	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R476	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R477	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R478	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R479	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R480	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R481	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R482	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R483	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R485	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R486	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R487	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R488	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R489	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R490	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R491	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R492	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R493	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R494	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R495	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R496	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R497	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R498	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R499	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

(SS-49A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R531	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R532	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R533	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R535	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R536	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R537	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R538	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R539	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
*a	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R540	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R541	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R542	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R543	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R544	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R546	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R548	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R549	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
*a	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R550	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R551	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R552	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R553	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R554	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R555	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R556	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R557	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R558	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R559	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R560	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R561	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R562	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R563	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R568	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R569	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R570	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R571	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R572	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R573	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R574	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R575	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R576	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R577	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R578	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R600	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R601	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R602	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R603	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R604	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R605	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R606	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R607	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R609	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R610	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R616	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R617	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(SS-49A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R618	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R632	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R633	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R634	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R635	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R636	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R637	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R638	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R640	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R641	1-216-093-00	s	METAL, CHIP 68K 5% 1/10W
R642	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R643	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R644	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R646	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R647	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R648	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R650	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R651	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R652	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
RB101	1-235-196-00	s	RES BLOCK 100K x8
RB301	1-235-195-00	s	RES BLOCK 10K x8
RV101	1-238-020-11	s	RES, ADJ, CARBON 100K
RV102	1-228-477-00	s	RES, ADJ, METAL 100K
RV301	1-241-136-11	s	RES, ADJ, CARBON 10K
RV302	1-241-136-11	s	RES, ADJ, CARBON 10K
RV303	1-241-119-11	s	RES, ADJ, CARBON 1K
RV304	1-241-119-11	s	RES, ADJ, CARBON 1K
RV305	1-241-136-11	s	RES, ADJ, CARBON 10K
RV500	1-241-136-11	s	RES, ADJ, CARBON 10K
RV502	1-241-136-11	s	RES, ADJ, CARBON 10K
RV503	1-241-136-11	s	RES, ADJ, CARBON 10K
S101	1-570-623-11	s	SWITCH, DIP 8-CKT
X101	1-567-962-11	s	CRYSTAL 8.00MHz
X301	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

VM-12P BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-317-A	o	MOUNTED CIRCUIT BOARD, VM-12P
1pc	X-3166-759-1	o	SHIELD (B) ASS'Y, VM BOARD
1pc	3-173-466-01	o	SHEET, INSULATING, VM BOARD
1pc	3-173-489-01	o	SHIELD (A), VM BOARD
1pc	3-177-646-01	o	SHIELD (C), VM BOARD
C10	1-124-584-00	s	ELECT 100uF 20% 10V
C13	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C16	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C17	1-124-589-11	s	ELECT 47uF 20% 16V
C30	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C31	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C34	1-163-110-00	s	CERAMIC, CHIP 51pF 5% 50V
C35	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C37	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C38	1-124-589-11	s	ELECT 47uF 20% 16V
C39	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C50	1-124-584-00	s	ELECT 100uF 20% 10V
C51	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C52	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C53	1-124-589-11	s	ELECT 47uF 20% 16V
C54	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C100	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
C101	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
*a	Not in use.		
C102	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C103	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C104	1-124-584-00	s	ELECT 100uF 20% 10V
C105	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C106	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C107	1-124-584-00	s	ELECT 100uF 20% 10V
C108	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C109	1-163-079-00	s	CERAMIC, CHIP 0.039uF 10% 25V
*d	1-162-637-11	s	CERAMIC, CHIP 0.47uF 16V
C110	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C120	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C121	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C122	1-124-584-00	s	ELECT 100uF 20% 10V
C123	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C124	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C125	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C126	1-124-584-00	s	ELECT 100uF 20% 10V
C127	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C128	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C130	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C140	1-162-638-11	s	CERAMIC, CHIP 1uF 16V
C141	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C142	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C143	1-163-105-00	s	CERAMIC, CHIP 33pF 5% 50V
C144	1-163-105-00	s	CERAMIC, CHIP 33pF 5% 50V
C145	1-126-301-11	s	ELECT 1uF 20% 50V
C190	1-124-638-11	s	ELECT 22uF 20% 10V
C191	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C192	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C193	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C194	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C195	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C200	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C201	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C202	1-126-301-11	s	ELECT 1uF 20% 50V

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(VM-12P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C203	1-124-589-11	s	ELECT 47uF 20% 16V
C220	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
*i	1-163-105-00	s	CERAMIC, CHIP 33pF 5% 50V
*b	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C230	1-126-157-11	s	ELECT 10uF 20% 16V
C231	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
*b	Change 3300pF -> 0.01uF.		
C232	1-126-162-11	s	ELECT 3.3uF 20% 50V
C234	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
*c	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C235	1-163-014-00	s	CERAMIC, CHIP 2700pF 5% 50V
*c	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C236	1-163-098-00	s	CERAMIC, CHIP 16pF 5% 50V
C237	1-131-350-00	s	TANTALUM 3.3uF 10% 35V
*a	1-124-584-00	s	ELECT 100uF 20% 10V
C250	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C251	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C252	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C253	1-164-161-11	s	CERAMIC, CHIP 2200pF 10% 100V
C254	1-124-589-11	s	ELECT 47uF 20% 16V
C255	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C256	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C257	1-131-347-00	s	TANTALUM 1uF 10% 35V
C258	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C270	1-124-589-11	s	ELECT 47uF 20% 16V
C271	1-163-127-00	s	CERAMIC, CHIP 270pF 5% 50V
C272	1-163-139-00	s	CERAMIC, CHIP 820pF 5% 50V
C290	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C291	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C292	1-124-584-00	s	ELECT 100uF 20% 10V
C293	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C300	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C301	1-124-589-11	s	ELECT 47uF 20% 16V
C302	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C303	1-124-589-11	s	ELECT 47uF 20% 16V
C304	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C305	1-124-589-11	s	ELECT 47uF 20% 16V
C306	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C307	1-124-589-11	s	ELECT 47uF 20% 16V
C308	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C309	1-124-589-11	s	ELECT 47uF 20% 16V
C310	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C311	1-124-589-11	s	ELECT 47uF 20% 16V
C312	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C313	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C314	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C315	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C316	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C317	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C350	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C351	1-163-141-00	s	CERAMIC, CHIP 1000pF 5% 50V
C400	1-124-584-00	s	ELECT 100uF 20% 10V
C401	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C488	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C489	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C490	1-124-589-11	s	ELECT 47uF 20% 16V
C491	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C492	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C493	1-124-584-00	s	ELECT 100uF 20% 10V

(VM-12P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C494	1-124-584-00	s	ELECT 100uF 20% 10V
C495	1-124-584-00	s	ELECT 100uF 20% 10V
C496	1-124-584-00	s	ELECT 100uF 20% 10V
C497	1-124-584-00	s	ELECT 100uF 20% 10V
C498	1-124-584-00	s	ELECT 100uF 20% 10V
C499	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C551	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
*b	1-163-243-11	s	CERAMIC, CHIP 47pF 5% 50V
C552	1-163-105-00	s	CERAMIC, CHIP 33pF 5% 50V
*b	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C555	1-163-105-00	s	CERAMIC, CHIP 33pF 5% 50V
*b	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C590	1-124-589-11	s	ELECT 47uF 20% 16V
C591	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C592	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C593	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C594	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C595	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C610	1-131-344-00	s	TANTALUM 0.33uF 10% 35V
C611	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C620	1-163-237-11	s	CERAMIC, CHIP 27pF 5% 50V
C621	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C622	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C623	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C624	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C665	1-124-589-11	s	ELECT 47uF 20% 16V
C710	1-163-023-00	s	CERAMIC, CHIP 0.015uF 10% 50V
C711	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C712	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C713	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C720	1-131-345-00	s	TANTALUM 0.47uF 10% 35V
C750	1-131-347-00	s	TANTALUM 1uF 10% 35V
C990	1-124-589-11	s	ELECT 47uF 20% 16V
C991	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C992	1-126-375-11	s	ELECT 100uF 20% 25V
C993	1-126-162-11	s	ELECT 3.3uF 20% 50V
CN701 Y	1-564-019-41	o	CONNECTOR, 9P, MALE
CN702 Y	1-506-470-11	s	CONNECTOR, 5P, MALE
CN710 W	1-562-887-11	s	CONNECTOR, FPC 20P, FEMALE
CV140	1-141-227-00	s	CAP, TRIMMER 20pF
CV230	1-141-227-00	s	CAP, TRIMMER 20pF
CV550	1-141-260-00	s	CAP, TRIMMER 50pF
*b	1-141-227-00	s	CAP, TRIMMER 20pF
CV620	1-141-227-00	s	CAP, TRIMMER 20pF
D140	8-719-949-46	s	DIODE 1T32
D230	8-713-300-88	s	DIODE 1T33C-01
D250	8-719-104-34	s	DIODE 1S2836
D400	8-719-104-34	s	DIODE 1S2836
D401	8-719-104-34	s	DIODE 1S2836
D510	8-719-104-34	s	DIODE 1S2836
D511	8-719-104-34	s	DIODE 1S2836
D512	8-719-104-34	s	DIODE 1S2836
D620	8-713-300-88	s	DIODE 1T33C-01
D710	8-719-104-34	s	DIODE 1S2836
D720	8-719-104-34	s	DIODE 1S2836
FB1A	1-410-858-21	o	BEADS, FERRITE
FB2A	1-410-858-21	o	BEADS, FERRITE

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

Ref. No. or Q'ty	Part No.	SP	Description
FB3A	1-410-858-21	o	BEADS, FERRITE
FL10	1-235-759-11	s	FILTER, LOW-PASS
FL30	1-235-181-00	s	FILTER, BANDPASS 4.43MHz
IC100	8-752-334-55	s	IC CXD1175AM
IC120	8-752-334-55	s	IC CXD1175AM
IC130	8-759-239-23	s	IC TC74HC86AF
IC131	8-759-925-76	s	IC SN74HC08ANS
IC160	8-759-987-17	s	IC CXD1226Q
IC161	8-759-925-85	s	IC SN74HC32ANS
IC200	8-759-987-20	s	IC CXD1229Q
IC250	8-759-009-51	s	IC MC14538BF
IC251	8-759-925-90	s	IC SN74HC74ANS
IC252	8-759-009-51	s	IC MC14538BF
IC253	8-759-925-90	s	IC SN74HC74ANS
IC254	8-759-927-46	s	IC SN74HC00ANS
IC255	8-759-926-23	s	IC SN74HC163ANS
IC256	8-759-927-46	s	IC SN74HC00ANS
IC257	8-759-300-71	s	IC HD14053BFP
IC300	8-752-340-75	s	IC CXK1206AM
IC301	8-752-340-75	s	IC CXK1206AM
IC302	8-752-340-75	s	IC CXK1206AM
IC303	8-752-340-75	s	IC CXK1206AM
IC304	8-752-340-75	s	IC CXK1206AM
IC305	8-752-340-75	s	IC CXK1206AM
IC350	8-759-927-46	s	IC SN74HC00ANS
IC351	8-759-926-29	s	IC SN74HC175ANS
IC352	8-759-009-51	s	IC MC14538BF
IC353	8-759-925-90	s	IC SN74HC74ANS
IC354	8-759-925-90	s	IC SN74HC74ANS
IC400	8-759-987-18	s	IC CXD1227Q
IC420	8-752-032-96	s	IC CXA1106M
IC440	8-752-032-96	s	IC CXA1106M
IC500	8-759-987-19	s	IC CXD1228Q
IC600	8-759-925-90	s	IC SN74HC74ANS
IC601	8-759-926-23	s	IC SN74HC163ANS
IC602	8-759-926-23	s	IC SN74HC163ANS
IC603	8-759-926-23	s	IC SN74HC163ANS
IC604	8-759-925-74	s	IC SN74HC04ANS
IC710	8-759-239-55	s	IC TC74HC123AF
IC711	8-759-009-51	s	IC MC14538BF
IC750	8-759-926-56	s	IC SN74HC273ANS
IC751	8-759-925-74	s	IC SN74HC04ANS
IC752	8-759-927-46	s	IC SN74HC00ANS
IC753	8-759-925-76	s	IC SN74HC08ANS
IC754	8-759-925-90	s	IC SN74HC74ANS
IC990	8-759-521-23	s	IC PQ05RF2V
L10	1-408-408-00	s	INDUCTOR 8.2uH
L12	1-410-482-31	s	INDUCTOR 100uH
L30	1-408-408-00	s	INDUCTOR 8.2uH
L31	1-410-482-31	s	INDUCTOR 100uH
L50	1-410-482-31	s	INDUCTOR 100uH
L100	1-410-482-31	s	INDUCTOR 100uH
L120	1-410-482-31	s	INDUCTOR 100uH
L140	1-410-460-11	s	INDUCTOR 1.5uH
L190	1-410-478-11	s	INDUCTOR 47uH
L230	1-410-466-41	s	INDUCTOR 4.7uH
L250	1-410-482-31	s	INDUCTOR 100uH
L270	1-408-423-00	s	INDUCTOR 150uH
L290	1-410-482-31	s	INDUCTOR 100uH
L300	1-410-478-11	s	INDUCTOR 47uH
L301	1-410-478-11	s	INDUCTOR 47uH
L302	1-410-478-11	s	INDUCTOR 47uH
L303	1-410-478-11	s	INDUCTOR 47uH
L304	1-410-478-11	s	INDUCTOR 47uH
L305	1-410-478-11	s	INDUCTOR 47uH
L490	1-410-478-11	s	INDUCTOR 47uH
L491	1-408-425-00	s	INDUCTOR 220uH
L492	1-408-425-00	s	INDUCTOR 220uH
L590	1-410-478-11	s	INDUCTOR 47uH
Q10	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q12	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q20	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q21	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q30	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q31	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q32	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q33	8-729-202-38	s	TRANSISTOR 2SC3326N
Q50	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q51	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q100	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q120	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q140	8-729-201-27	s	TRANSISTOR 2SC2715-Y
Q141	8-729-122-63	s	TRANSISTOR 2SA1226
Q200	8-729-202-38	s	TRANSISTOR 2SC3326N
Q210	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q214	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q270	8-729-120-28	s	TRANSISTOR 2SC1623-L5L6
Q271	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q550	8-729-201-27	s	TRANSISTOR 2SC2715-Y
Q551	8-729-122-63	s	TRANSISTOR 2SA1226
Q620	8-729-201-27	s	TRANSISTOR 2SC2715-Y
Q621	8-729-140-47	s	TRANSISTOR 2SC3735-L-B35
Q720	8-729-901-01	s	TRANSISTOR DTC144EK
R10	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R11	Deleted.		
*d	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R11A	1-215-423-00	s	METAL 1.2K 1% 1/4W
*d	Not in use.		
R12	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R13	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R14	1-216-039-00	s	METAL, CHIP 390 5% 1/10W
R15	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R19	1-216-295-00	s	METAL, CHIP 0
R20	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R21	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R23A	1-249-432-11	s	CARBON 18K 5% 1/4W
*d	Not in use.		
R24A	1-249-429-11	s	CARBON 10K 5% 1/4W
*d	Not in use.		
R30	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R31	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R32	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R33	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R34	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R35	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(VM-12P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R36	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R37	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R38	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R39	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R40	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R41	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R42	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R50	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R51	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R52	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R53	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R54	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R55	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R100	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R101	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R102	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R103	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R104	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R105	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
*d	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R106	1-216-119-00	s	METAL, CHIP 820K 5% 1/10W
R107	1-216-111-00	s	METAL, CHIP 390K 5% 1/10W
R108	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R109	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R110A	1-215-473-00	s	METAL 150K 1% 1/4W
*d	Not in use.		
R120	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R121	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R122	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R123	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R124	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R125	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R126	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R130	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R131	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R132	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R140	1-216-119-00	s	METAL, CHIP 820K 5% 1/10W
R141	1-216-111-00	s	METAL, CHIP 390K 5% 1/10W
R142	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R143	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R144	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R145	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R146	1-216-011-00	s	METAL, CHIP 27 5% 1/10W
R147	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R148	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R149	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R150	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R151	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R153	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R154	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R161	1-216-295-00	s	METAL, CHIP 0
R162	1-216-295-00	s	METAL, CHIP 0
R165	1-216-295-00	s	METAL, CHIP 0
R166A	1-249-417-11	s	CARBON 1K 5% 1/4W
*c	Not in use.		
R200	1-216-117-00	s	METAL, CHIP 680K 5% 1/10W
R201	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R202	1-216-021-00	s	METAL, CHIP 68 5% 1/10W
R203	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W

(VM-12P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R204	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R205	1-216-019-00	s	METAL, CHIP 56 5% 1/10W
R206	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R220	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
*e	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
*b	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R230	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R231	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R232	Deleted.		
*c	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R233	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R234	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
*d	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R235	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R236	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R237	1-216-117-00	s	METAL, CHIP 680K 5% 1/10W
*a	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R238	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R240	1-216-295-00	s	METAL, CHIP 0
R250	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R251	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R253	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R255	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R256	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R259	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R260	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R270	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R271	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R272	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R273	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R274	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R275	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R351	1-216-295-00	s	METAL, CHIP 0
R353	1-216-295-00	s	METAL, CHIP 0
R355	1-216-295-00	s	METAL, CHIP 0
R356	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R357	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R358	1-216-295-00	s	METAL, CHIP 0
R361	1-216-295-00	s	METAL, CHIP 0
R400	1-216-295-00	s	METAL, CHIP 0
R403	1-216-295-00	s	METAL, CHIP 0
R404	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R405	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R406	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R407	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
*a	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R408	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R409	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
*a	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R410	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R411	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R412	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R413	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R414	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R415	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R416	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R501	1-216-295-00	s	METAL, CHIP 0
R503	1-216-295-00	s	METAL, CHIP 0
R505	1-216-295-00	s	METAL, CHIP 0

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(VM-12P BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R510	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R511	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R512	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R513	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R514	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R515	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R516	1-216-295-00	s	METAL, CHIP 0
R517	1-216-295-00	s	METAL, CHIP 0
R518	1-216-295-00	s	METAL, CHIP 0
R519	1-216-295-00	s	METAL, CHIP 0
R520	1-216-295-00	s	METAL, CHIP 0
R521	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R522	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R523	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R550	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R551	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R552	1-216-011-00	s	METAL, CHIP 27 5% 1/10W
R556	1-216-295-00	s	METAL, CHIP 0
R557	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R558	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R559	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R605	1-216-295-00	s	METAL, CHIP 0
R610	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R611	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R620	1-216-658-11	s	METAL, CHIP 2K 0.5% 1/10W
R621	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R622	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R623	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R624	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R625	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R626	1-216-692-11	s	METAL, CHIP 51K 0.5% 1/10W
R627	1-216-648-11	s	METAL, CHIP 750 0.5% 1/10W
R672	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R700	1-216-295-00	s	METAL, CHIP 0
R703	1-216-295-00	s	METAL, CHIP 0
R705	1-216-295-00	s	METAL, CHIP 0
R707	1-216-295-00	s	METAL, CHIP 0
R708	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R709	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R710	1-216-101-00	s	METAL, CHIP 150K 5% 1/10W
R711	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R712	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R713	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R720	1-216-683-11	s	METAL, CHIP 22K 0.5% 1/10W
R721	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R722	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R723	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R750	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R751	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R752	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R990	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R991	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
X301	1-579-057-11	s	CRYSTAL 17.734475MHz
X550	1-577-704-11	s	CRYSTAL 14.21875MHz
X620	1-579-057-11	s	CRYSTAL 17.734475MHz

VO-37A BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8271-318-A	o	MOUNTED CIRCUIT BOARD, VO-37A
1pc	3-168-157-01	o	BRACKET (R), VO BOARD
1pc	3-168-158-01	o	BRACKET (L), VO BOARD
1pc	3-173-464-01	o	SHIELD (A), VO BOARD
1pc	3-173-465-01	o	SHIELD (B), VO BOARD
1pc	3-659-918-01	o	HEAT SINK, IC (for IC1)
3pcs	3-703-353-08	o	SUPPORTER, PC BOARD
1pc	7-682-547-04	s	SCREW +B 3x6 (for IC1)
2pcs	7-682-903-11	s	SCREW +PWH 3x6
C1	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C2	1-126-516-11	s	ELECT 120uF 20% 16V
C3	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C4	1-126-516-11	s	ELECT 120uF 20% 16V
C5	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C6	1-124-589-11	s	ELECT 47uF 20% 16V
C30	1-124-584-00	s	ELECT 100uF 20% 10V
C31	1-124-584-00	s	ELECT 100uF 20% 10V
C101	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
*b	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C102	1-163-135-00	s	CERAMIC, CHIP 560pF 5% 50V
C103	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C104	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C105	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C106	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C107	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C108	1-124-638-11	s	ELECT 22uF 20% 10V
C109	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C110	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C111	1-124-257-00	s	ELECT 2.2uF 20% 50V
C112	1-126-163-11	s	ELECT 4.7uF 20% 50V
C113	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C114	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C115	1-124-442-00	s	ELECT 330uF 20% 6.3V
C116	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
C117	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C118	1-163-241-11	s	CERAMIC, CHIP 39pF 5% 50V
C119	1-124-589-11	s	ELECT 47uF 20% 16V
C120	1-124-257-00	s	ELECT 2.2uF 20% 50V
C121	1-124-589-11	s	ELECT 47uF 20% 16V
C122	1-126-163-11	s	ELECT 4.7uF 20% 50V
C123	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C125	1-163-136-00	s	CERAMIC, CHIP 620pF 5% 50V
C126	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C127	1-124-257-00	s	ELECT 2.2uF 20% 50V
C128	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C129	1-163-131-00	s	CERAMIC, CHIP 390pF 5% 50V
C130	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C131	1-163-263-11	s	CERAMIC, CHIP 330pF 5% 50V
C132	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C133	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C134	1-163-139-00	s	CERAMIC, CHIP 820pF 5% 50V
C135A	1-124-465-00	s	ELECT 0.47uF 20% 50V
*b	Not in use.		
C136	1-124-589-11	s	ELECT 47uF 20% 16V
C137	1-124-589-11	s	ELECT 47uF 20% 16V
C141	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C142	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C143	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C145	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C146	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C147	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C148	1-124-589-11	s	ELECT 47uF 20% 16V
C149	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C150	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C151	1-124-589-11	s	ELECT 47uF 20% 16V
C152	1-163-257-11	s	CERAMIC, CHIP 180pF 5% 50V
C153	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C154	1-124-589-11	s	ELECT 47uF 20% 16V
C155	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
*b	Not in use.		
C156	1-163-257-11	s	CERAMIC, CHIP 180pF 5% 50V
C157	1-163-125-00	s	CERAMIC, CHIP 220pF 5% 50V
C158	1-163-108-00	s	CERAMIC, CHIP 43pF 5% 50V
C160	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C161	1-163-229-11	s	CERAMIC, CHIP 12pF 5% 50V
C162	1-163-087-00	s	CERAMIC, CHIP 4pF 50V
C163	1-163-245-11	s	CERAMIC, CHIP 56pF 5% 50V
C164	1-163-091-00	s	CERAMIC, CHIP 8pF 50V
C165	1-163-099-00	s	CERAMIC, CHIP 18pF 5% 50V
C167	1-163-113-00	s	CERAMIC, CHIP 68pF 5% 50V
C170	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C172	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C173	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C174	1-124-589-11	s	ELECT 47uF 20% 16V
C175	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C180	1-163-241-11	s	CERAMIC, CHIP 39pF 5% 50V
C181	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C182	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C201	1-124-589-11	s	ELECT 47uF 20% 16V
C202	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C203	1-124-589-11	s	ELECT 47uF 20% 16V
C204	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C205	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C208	1-163-127-00	s	CERAMIC, CHIP 270pF 5% 50V
C209	1-163-112-00	s	CERAMIC, CHIP 62pF 5% 50V
C211	1-164-491-11	s	CERAMIC, CHIP 300pF 1% 50V
C213	1-124-589-11	s	ELECT 47uF 20% 16V
C214	1-126-163-11	s	ELECT 4.7uF 20% 50V
C215	1-126-163-11	s	ELECT 4.7uF 20% 50V
C216	1-124-589-11	s	ELECT 47uF 20% 16V
C218	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C219	1-124-589-11	s	ELECT 47uF 20% 16V
C220	1-124-589-11	s	ELECT 47uF 20% 16V
C221	1-124-589-11	s	ELECT 47uF 20% 16V
C222	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C223	1-124-589-11	s	ELECT 47uF 20% 16V
C224	1-124-589-11	s	ELECT 47uF 20% 16V
C226	1-124-589-11	s	ELECT 47uF 20% 16V
C227	1-163-097-00	s	CERAMIC, CHIP 15pF 5% 50V
C228	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C230	1-124-589-11	s	ELECT 47uF 20% 16V
C231	1-126-163-11	s	ELECT 4.7uF 20% 50V
C232	1-163-115-00	s	CERAMIC, CHIP 82pF 5% 50V
C233	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C234	1-124-589-11	s	ELECT 47uF 20% 16V
C235	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C240	1-163-121-00	s	CERAMIC, CHIP 150pF 5% 50V
C242	1-163-257-11	s	CERAMIC, CHIP 180pF 5% 50V

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C243	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C244	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C245	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C246	1-163-235-11	s	CERAMIC, CHIP 22pF 5% 50V
C247	1-163-124-00	s	CERAMIC, CHIP 200pF 5% 50V
C249	1-163-113-00	s	CERAMIC, CHIP 68pF 5% 50V
C250	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C251	1-124-589-11	s	ELECT 47uF 20% 16V
C252	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C261	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C262	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C263A	1-162-283-31	s	CERAMIC 120pF 10% 50V
*b	Not in use.		
C302	1-124-589-11	s	ELECT 47uF 20% 16V
C309	1-124-584-00	s	ELECT 100uF 20% 10V
C310	1-124-584-00	s	ELECT 100uF 20% 10V
C311	1-124-589-11	s	ELECT 47uF 20% 16V
C312	1-124-589-11	s	ELECT 47uF 20% 16V
C313	1-124-589-11	s	ELECT 47uF 20% 16V
C314	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C315	1-131-360-00	s	TANTALUM 15uF 10% 25V
*d	1-131-365-00	s	TANTALUM 10uF 10% 20V
C320	1-124-589-11	s	ELECT 47uF 20% 16V
C321	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C322	1-131-351-00	s	TANTALUM 4.7uF 10% 35V
C323	1-124-589-11	s	ELECT 47uF 20% 16V
C324	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C325	1-163-251-11	s	CERAMIC, CHIP 100pF 5% 50V
C326	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C327	1-163-089-00	s	CERAMIC, CHIP 6pF 50V
C330	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C331	1-124-589-11	s	ELECT 47uF 20% 16V
C332	1-126-163-11	s	ELECT 4.7uF 20% 50V
C333	1-163-133-00	s	CERAMIC, CHIP 470pF 5% 50V
C334	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C335	1-124-589-11	s	ELECT 47uF 20% 16V
C336	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C337	1-124-589-11	s	ELECT 47uF 20% 16V
C340	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C341	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C342	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C343	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C344	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C345	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C346	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C347	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C348	1-163-038-00	s	CERAMIC, CHIP 0.1uF 25V
C349	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C350	1-124-589-11	s	ELECT 47uF 20% 16V
C351	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C352	1-124-584-00	s	ELECT 100uF 20% 10V
*d	1-124-589-11	s	ELECT 47uF 20% 16V
C353	1-124-584-00	s	ELECT 100uF 20% 10V
*d	1-124-589-11	s	ELECT 47uF 20% 16V
C354	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C355	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C356	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C357	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C358	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C359	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C360	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C361	1-163-089-00	s	CERAMIC, CHIP 6pF 50V
C363	1-124-442-00	s	ELECT 330uF 20% 6.3V
C364	1-163-239-11	s	CERAMIC, CHIP 33pF 5% 50V
C365	1-163-237-11	s	CERAMIC, CHIP 27pF 5% 50V
C366	1-163-229-11	s	CERAMIC, CHIP 12pF 5% 50V
C370	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C371	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C380	1-124-584-00	s	ELECT 100uF 20% 10V
C381	1-124-584-00	s	ELECT 100uF 20% 10V
C383	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C384	1-124-589-11	s	ELECT 47uF 20% 16V
C385	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C386	1-124-589-11	s	ELECT 47uF 20% 16V
C390	1-124-589-11	s	ELECT 47uF 20% 16V
C391	1-124-589-11	s	ELECT 47uF 20% 16V
C402	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C407	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C408	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C410	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C411	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C413	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C416	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C417	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C418	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C419	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C420	1-124-584-00	s	ELECT 100uF 20% 10V
C422	1-124-584-00	s	ELECT 100uF 20% 10V
*d	1-124-589-11	s	ELECT 47uF 20% 16V
C423A	1-107-077-00	s	MICA 47pF 5% 50V
*c	Not in use.		
C425	1-124-589-11	s	ELECT 47uF 20% 16V
C426	1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C427	1-124-589-11	s	ELECT 47uF 20% 16V
C428	1-124-589-11	s	ELECT 47uF 20% 16V
C429	1-124-589-11	s	ELECT 47uF 20% 16V
C430	1-124-589-11	s	ELECT 47uF 20% 16V
C431	1-164-222-11	s	CERAMIC, CHIP 0.22uF 25V
C432	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C433	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C434	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C435	1-126-157-11	s	ELECT 10uF 20% 16V
C436	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C440	1-126-157-11	s	ELECT 10uF 20% 16V
C441	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C450	1-163-227-11	s	CERAMIC, CHIP 10pF 5% 50V
C451	1-163-108-00	s	CERAMIC, CHIP 43pF 5% 50V
C452	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C453	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C454	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 50V
C455	1-126-157-11	s	ELECT 10uF 20% 16V
C460	1-124-584-00	s	ELECT 100uF 20% 10V
C461	1-131-377-00	s	TANTALUM 10uF 10% 10V
*d	1-131-349-00	s	TANTALUM 2.2uF 10% 35V
C471	1-124-584-00	s	ELECT 100uF 20% 10V
C472	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C473	1-124-589-11	s	ELECT 47uF 20% 16V
C480	1-124-589-11	s	ELECT 47uF 20% 16V

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C481	1-124-257-00	s	ELECT 2.2uF 20% 50V
C482	1-124-584-00	s	ELECT 100uF 20% 10V
C483	1-124-584-00	s	ELECT 100uF 20% 10V
C488	1-124-584-00	s	ELECT 100uF 20% 10V
C489	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C491	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C492	1-126-925-11	s	ELECT 470uF 20% 10V
*a	Change 47uF -> 470uF.		
C493	1-124-471-00	s	ELECT 1000uF 20% 6.3V
C494	1-163-087-00	s	CERAMIC, CHIP 4pF 50V
C495	1-163-087-00	s	CERAMIC, CHIP 4pF 50V
C496	1-163-035-00	s	CERAMIC, CHIP 0.047uF 50V
C497	1-126-157-11	s	ELECT 10uF 20% 16V
C498	1-124-584-00	s	ELECT 100uF 20% 10V
C499	1-124-471-00	s	ELECT 1000uF 20% 6.3V
CN201 B	1-506-471-11	s	CONNECTOR, 6P, MALE
CN202 W	------------	-	HARNESS (RP PB)
CN203 B	1-506-475-11	s	CONNECTOR, 10P, MALE
CN206 W	------------	-	HARNESS (RP FSC)
CN207 W	------------	-	HARNESS (RP REC)
CN208 W	------------	-	HARNESS (RP-VO)
CN211 W	1-562-992-11	o	CONNECTOR, FPC 26P, FEMALE
CN221 W	1-506-474-11	s	CONNECTOR, 9P, MALE
CN222 Y	1-506-470-11	s	CONNECTOR, 5P, MALE
CN231 Y	1-506-470-11	s	CONNECTOR, 5P, MALE
CN232 Y	1-506-473-11	s	CONNECTOR, 8P, MALE
D10	8-719-400-18	s	DIODE MA152WK
D101	8-719-400-18	s	DIODE MA152WK
D102A	8-719-104-10	s	DIODE 1SS99
*c	Not in use.		
D103	8-719-400-18	s	DIODE MA152WK
D130A	8-719-911-19	s	DIODE 1SS119
*b	Not in use.		
D201	8-719-400-18	s	DIODE MA152WK
D202	8-719-400-18	s	DIODE MA152WK
D301	8-719-400-18	s	DIODE MA152WK
D401A	8-719-911-19	s	DIODE 1SS119
DL201	1-415-677-11	s	DELAY LINE 370nS
DL301	1-415-559-11	s	DELAY LINE 600nS
FL101	1-236-911-11	s	FILTER, LOW-PASS
FL201	1-236-716-11	s	FILTER, LOW-PASS
FL301	1-239-085-11	s	FILTER, LOW-PASS
FL302	1-239-085-11	s	FILTER, LOW-PASS
IC1	8-759-982-10	s	IC RC7809FA
IC10	8-759-038-46	s	IC SC7S00F
IC101	8-759-420-64	s	IC AN3237FB
IC102	8-759-710-07	s	IC NJM2234M
IC201	8-759-710-07	s	IC NJM2234M
IC202	8-759-051-54	s	IC VC2076MP
IC203	8-759-710-86	s	IC NJM2233BM
IC302	8-759-710-86	s	IC NJM2233BM
IC303	8-752-334-55	s	IC CXD1175AM
IC304	8-752-342-61	s	IC CXD2105AQ
IC306	8-759-710-07	s	IC NJM2234M
IC402	8-759-710-07	s	IC NJM2234M
IC403	8-759-710-07	s	IC NJM2234M
IC404	8-759-710-86	s	IC NJM2233BM

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280

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Ref. No. or Q'ty	Part No.	SP	Description
IC405	8-759-710-07	s	IC NJM2234M
IC406	8-759-710-07	s	IC NJM2234M
IC407	8-759-710-07	s	IC NJM2234M
IC440	8-759-925-60	s	IC BA401
IC441	8-759-925-60	s	IC BA401
IC442	8-752-039-13	s	IC CXA1413L
IC491	8-759-057-43	s	IC MC14576BF
IC492	8-759-057-40	s	IC MC14577BF
L1	1-410-482-31	s	INDUCTOR 100uH
L101	1-408-420-00	s	INDUCTOR 82uH
L102	1-410-482-31	s	INDUCTOR 100uH
L103	1-410-482-31	s	INDUCTOR 100uH
L105	1-408-416-00	s	INDUCTOR 39uH
L106	1-408-416-00	s	INDUCTOR 39uH
L108	1-410-473-11	s	INDUCTOR 18uH
L109	1-410-482-31	s	INDUCTOR 100uH
L110	1-410-482-31	s	INDUCTOR 100uH
L111	1-410-478-11	s	INDUCTOR 47uH
L112	1-408-416-00	s	INDUCTOR 39uH
L115	1-408-411-00	s	INDUCTOR 15uH
L116	1-408-411-00	s	INDUCTOR 15uH
L117	1-410-478-11	s	INDUCTOR 47uH
L118	1-410-482-31	s	INDUCTOR 100uH
L120	1-408-416-00	s	INDUCTOR 39uH
L121	1-408-423-00	s	INDUCTOR 150uH
L122A	1-408-413-00	s	INDUCTOR 22uH
*b	Not in use.		
L201	1-410-482-31	s	INDUCTOR 100uH
L202	1-410-482-31	s	INDUCTOR 100uH
L210	1-410-489-11	s	INDUCTOR 390uH
L213	1-408-423-00	s	INDUCTOR 150uH
L215	1-410-482-31	s	INDUCTOR 100uH
L301	1-410-482-31	s	INDUCTOR 100uH
L302	1-410-482-31	s	INDUCTOR 100uH
L310	1-410-482-31	s	INDUCTOR 100uH
L311	1-410-470-11	s	INDUCTOR 10uH
L312	1-410-471-11	s	INDUCTOR 12uH
L320	1-408-420-00	s	INDUCTOR 82uH
L440	1-408-423-00	s	INDUCTOR 150uH
*a	1-410-473-11	s	INDUCTOR 18uH
L441	1-408-414-00	s	INDUCTOR 27uH
L444	1-410-482-31	s	INDUCTOR 100uH
L490	1-410-482-31	s	INDUCTOR 100uH
Q10	8-729-901-06	s	TRANSISTOR DTA144EK
Q11	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q12	8-729-901-01	s	TRANSISTOR DTC144EK
Q13	8-729-901-01	s	TRANSISTOR DTC144EK
Q14	8-729-901-06	s	TRANSISTOR DTA144EK
Q15	8-729-901-01	s	TRANSISTOR DTC144EK
Q16	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q17	8-729-901-06	s	TRANSISTOR DTA144EK
Q19	8-729-901-06	s	TRANSISTOR DTA144EK
Q20	8-729-901-01	s	TRANSISTOR DTC144EK
Q21	8-729-901-01	s	TRANSISTOR DTC144EK
Q22	8-729-901-01	s	TRANSISTOR DTC144EK
Q30	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q31	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q32	8-729-230-49	s	TRANSISTOR 2SC2712-YG

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Ref. No. or Q'ty	Part No.	SP	Description
Q40	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q41	8-729-202-38	s	TRANSISTOR 2SC3326N
Q101	8-729-901-01	s	TRANSISTOR DTC144EK
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q103	8-729-901-01	s	TRANSISTOR DTC144EK
Q104	8-729-901-01	s	TRANSISTOR DTC144EK
Q105	8-729-901-01	s	TRANSISTOR DTC144EK
Q106	8-729-901-01	s	TRANSISTOR DTC144EK
Q107	8-729-901-01	s	TRANSISTOR DTC144EK
Q108	8-729-901-01	s	TRANSISTOR DTC144EK
Q109	8-729-901-01	s	TRANSISTOR DTC144EK
Q110	8-729-901-01	s	TRANSISTOR DTC144EK
Q111	8-729-901-01	s	TRANSISTOR DTC144EK
Q112	8-729-901-01	s	TRANSISTOR DTC144EK
Q113	8-729-901-01	s	TRANSISTOR DTC144EK
Q114	8-729-901-01	s	TRANSISTOR DTC144EK
Q116	8-729-901-01	s	TRANSISTOR DTC144EK
Q118	8-729-901-06	s	TRANSISTOR DTA144EK
Q119	8-729-901-06	s	TRANSISTOR DTA144EK
Q120	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q121	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q122	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q123	8-729-901-06	s	TRANSISTOR DTA144EK
Q124	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q125	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q126	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q128	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q130	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q131	8-729-901-06	s	TRANSISTOR DTA144EK
Q140	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q141	8-729-901-01	s	TRANSISTOR DTC144EK
Q150A	8-729-900-89	s	TRANSISTOR DTC144ES
*c	Not in use.		
Q151A	8-729-900-89	s	TRANSISTOR DTC144ES
*c	Not in use.		
Q201	8-729-901-01	s	TRANSISTOR DTC144EK
Q203	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q204	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q205	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q206	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q207	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q208	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q209	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q210	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q211	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q212	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q213	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q214	8-729-901-06	s	TRANSISTOR DTA144EK
Q215	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q216	8-729-901-01	s	TRANSISTOR DTC144EK
Q261	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q262	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q304	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q305	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q306	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q310	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q311	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q312	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q313	8-729-901-01	s	TRANSISTOR DTC144EK

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

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Ref. No. or Q'ty	Part No.	SP	Description
Q314	8-729-901-01	s	TRANSISTOR DTC144EK
Q320	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q323	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q324	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q326	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q327	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q328	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q329	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q333	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q334	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q335	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q336	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q337	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q339	8-729-202-38	s	TRANSISTOR 2SC3326N
Q402	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q420	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q421	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q430	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q431	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q432	8-729-903-97	s	TRANSISTOR FMS1FE
Q433	8-729-903-97	s	TRANSISTOR FMS1FE
Q434	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q435	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q438	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q439	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q440	8-729-216-22	s	TRANSISTOR 2SA1162-G
Q480	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q481	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q482	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q483	8-729-230-49	s	TRANSISTOR 2SC2712-YG
R10	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R11	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R12	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R13	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R14	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R15	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R20	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R21	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R22	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R30	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R31	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R32	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R33	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R34	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R35	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R36	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R37	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R41	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R42	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R43	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R50	1-216-295-00	s	METAL, CHIP 0
R52	Deleted.		
*c	1-216-295-00	s	METAL, CHIP 0
R101	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R102	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R103	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R104	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
*b	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R105	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R106	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R107	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R108	1-216-069-00	s	METAL, CHIP 6.8K 5% 1/10W
R109	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R110	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
*b	1-216-636-11	s	METAL, CHIP 240 0.5% 1/10W
R111	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R112	1-216-115-00	s	METAL, CHIP 560K 5% 1/10W
R114	Deleted.		
*c	1-216-105-00	s	METAL, CHIP 220K 5% 1/10W
R114A	1-247-887-00	s	CARBON 220K 5% 1/4W
*c	Not in use.		
R115	1-216-129-00	s	METAL, CHIP 2.2M 5% 1/10W
R116	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R117	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R118	1-216-667-11	s	METAL, CHIP 4.7K 0.5% 1/10W
R119	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R120	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R121	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R122	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R123	1-216-640-11	s	METAL, CHIP 360 0.5% 1/10W
*b	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R124	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R125	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R126	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R127	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R128	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R129	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R130	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
*b	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R132	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
*c	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R135	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R136	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R137A	1-249-429-11	s	CARBON 10K 5% 1/4W
*b	Not in use.		
R138	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R139	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R140	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
R141	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R142	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R143	1-216-685-11	s	METAL, CHIP 27K 0.5% 1/10W
*c	Change 22K -> 27K.		
R144	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R145	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R146	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R148	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R151	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R152	1-216-089-00	s	METAL, CHIP 47K 5% 1/10W
R155	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R156	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R157	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R158	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R159	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R160	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R161	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R162	1-216-075-00	s	METAL, CHIP 12K 5% 1/10W
R163	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R164	1-216-295-00	s	METAL, CHIP 0

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R165	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R166	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R168	1-216-037-00	s	METAL, CHIP 330 5% 1/10W
R169	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R170	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R171	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R172	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R173	1-216-079-00	s	METAL, CHIP 18K 5% 1/10W
R174	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R175	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R176	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R177	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R178	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R179	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R181	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R182	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R183	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R184	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R185	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R186	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R187	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R188	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R190A	1-249-429-11	s	CARBON 10K 5% 1/4W
*c	Not in use.		
R196	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R197	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R201	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R202	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R203	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R205	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R207	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R208	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R209	1-216-113-00	s	METAL, CHIP 470K 5% 1/10W
R210	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R211	1-216-295-00	s	METAL, CHIP 0
R213	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R214	1-216-295-00	s	METAL, CHIP 0
R217	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R218	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R219	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R220	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R221	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R222	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R223	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R224	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R225	1-216-656-11	s	METAL, CHIP 1.6K 0.5% 1/10W
R226	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R227	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R228	1-216-071-00	s	METAL, CHIP 8.2K 5% 1/10W
R229	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R230	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R232	1-216-063-00	s	METAL, CHIP 3.9K 5% 1/10W
R235	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R250	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R251	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R252	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R253	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R254	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R255	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W

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Ref. No. or Q'ty	Part No.	SP	Description
R256	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R257	1-216-039-00	s	METAL, CHIP 390 5% 1/10W
R258	1-216-642-11	s	METAL, CHIP 430 0.5% 1/10W
R259	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R260	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R261	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R262	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R263	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R264	1-216-013-00	s	METAL, CHIP 33 5% 1/10W
R265	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R270	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R271	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R272	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R277	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R278	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R279	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R280	1-216-077-00	s	METAL, CHIP 15K 5% 1/10W
R281	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R282	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R283	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R284	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R285	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R286	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R287	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R290	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R291	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R293	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R294	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R295	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R296	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R300	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
*d	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R310	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R311	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R312	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
*d	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R313	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R314	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
*d	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R315	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R316	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R317	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R318	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R319	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R320	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R322A	1-215-422-11	s	METAL 1.1K 1% 1/4W
*d	Not in use.		
R323	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R324	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R326	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R327	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R328	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R329	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R330	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R331	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R332	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R333	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R335	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R336	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R337	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R338	1-216-065-00	s	METAL, CHIP 4.7K 5% 1/10W
R339	1-216-121-00	s	METAL, CHIP 1M 5% 1/10W
R340	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R341	1-216-085-00	s	METAL, CHIP 33K 5% 1/10W
R342	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R343	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R344	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R345	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R346	1-216-067-00	s	METAL, CHIP 5.6K 5% 1/10W
R348	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R349	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R350	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R351	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R352	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
R353	1-216-061-00	s	METAL, CHIP 3.3K 5% 1/10W
R354	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R355	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R356	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R360	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R361	1-216-035-00	s	METAL, CHIP 270 5% 1/10W
R362	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R363	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R364	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R366	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R367	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R368	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R369	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R374	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R375	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R376	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R377	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R378	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R379	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R380	1-216-045-00	s	METAL, CHIP 680 5% 1/10W
R381	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R382	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R383	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R384	1-216-025-00	s	METAL, CHIP 100 5% 1/10W
R385	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R393	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R394	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R395	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R396	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R397	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R398	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R399	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R400	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R401	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R406	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R407	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R408	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R410	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R411	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R415	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R421	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R422	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R423	1-216-051-00	s	METAL, CHIP 1.2K 5% 1/10W
R424	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R425	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R426	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R431	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R432	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R440	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R441	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R442	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
*a	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R443	1-216-031-00	s	METAL, CHIP 180 5% 1/10W
R444	1-216-043-00	s	METAL, CHIP 560 5% 1/10W
R445	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R446	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R447	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R448	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R449	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R450	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R451	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R452	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R453	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R454	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R455	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R456	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R457	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R458	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R459	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R460	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R461	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R462	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R466	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R467	1-216-648-11	s	METAL, CHIP 750 0.5% 1/10W
*d	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R468	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R469	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R470	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R471	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R472	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R473	1-216-053-00	s	METAL, CHIP 1.5K 5% 1/10W
R474	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R475	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R476	1-216-689-11	s	METAL, CHIP 39K 0.5% 1/10W
R477	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R478	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R479	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R480	1-216-055-00	s	METAL, CHIP 1.8K 5% 1/10W
R481	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R482	1-216-041-00	s	METAL, CHIP 470 5% 1/10W
R483	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R484	1-216-049-00	s	METAL, CHIP 1K 5% 1/10W
R485	1-216-047-00	s	METAL, CHIP 820 5% 1/10W
R486	1-216-081-00	s	METAL, CHIP 22K 5% 1/10W
R487	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R488	1-216-057-00	s	METAL, CHIP 2.2K 5% 1/10W
R489A	1-215-441-00	s	METAL 6.8K 1% 1/6W
R490	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R491	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R492	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R493	1-216-083-00	s	METAL, CHIP 27K 5% 1/10W
R494	1-216-073-00	s	METAL, CHIP 10K 5% 1/10W
R495	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280

(VO-37A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R496	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R497	1-216-097-00	s	METAL, CHIP 100K 5% 1/10W
R498	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R499	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
RV30	1-238-012-11	s	RES, ADJ, CARBON 1K
RV101	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV102	1-238-016-11	s	RES, ADJ, CARBON 10K
RV103	1-238-016-11	s	RES, ADJ, CARBON 10K
RV104	1-238-017-11	s	RES, ADJ, CARBON 22K
RV105	1-238-012-11	s	RES, ADJ, CARBON 1K
RV106	1-238-017-11	s	RES, ADJ, CARBON 22K
RV107	1-238-017-11	s	RES, ADJ, CARBON 22K
RV108	1-238-017-11	s	RES, ADJ, CARBON 22K
RV109	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV202	1-238-011-11	s	RES, ADJ, CARBON 470
RV210	1-230-717-11	s	RES, ADJ, CARBON 470
RV211	1-230-717-11	s	RES, ADJ, CARBON 470
RV260	1-230-717-11	s	RES, ADJ, CARBON 470
RV310	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV311	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV401	1-238-012-11	s	RES, ADJ, CARBON 1K
RV402	1-238-012-11	s	RES, ADJ, CARBON 1K
RV480	1-238-012-11	s	RES, ADJ, CARBON 1K
RV481	1-238-013-11	s	RES, ADJ, CARBON 2.2K
RV482	1-238-013-11	s	RES, ADJ, CARBON 2.2K

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
2pcs	⚠1-532-203-00	s	FUSE, TIME-LAG 2A 250V "AC-136 BOARD"
2pcs	⚠1-532-237-00	s	FUSE, TIME-LAG 3.15A 250V "DC-53A BOARD"
1pc	1-690-612-11	o	WIRE, FLEXIBLE CARD 20P "SS-49A BOARD TO VM-12P BOARD"
1pc	1-690-613-11	o	WIRE, FLEXIBLE CARD 26P "VO-37A BOARD TO CR-39 BOARD"
1pc	1-690-614-12	o	WIRE, FLEXIBLE CARD 28P "SS-49A BOARD TO DR-176 BOARD"
CN1001	⚠1-580-375-11	s	INLET, AC 3P, MALE "AC IN"
CS1001	1-806-682-91	s	SENSOR, DEW CONDENSATION (with harness)
FB1001	1-543-793-11	s	FILTER, CLAMP (FERRITE CORE) "HARNESS(VM VO-1)"
FB1002	1-543-793-11	s	FILTER, CLAMP (FERRITE CORE) "HARNESS(AU MIC)"
H1001	X-3165-588-1	o	HEAD ASSY, ACE
H1002	8-848-578-12	s	DRUM ASSY DZH-41A-R
	8-848-579-02	s	UPPER DRUM ASSY DZR-41-R
H1003	1-543-695-11	s	HEAD, FULL-ERASE
M904	X-3727-784-1	s	MOTOR ASSY (includes CM-14 board) "CASSETTE COMPARTMENT"
M1002	8-835-480-02	s	MOTOR, DC SCV-0401A "CAPSTAN"
M1003	8-835-432-01	s	MOTOR, DC SRV-0201A "T-REEL"
M1004	8-835-432-01	s	MOTOR, DC SRV-0201A "R-REEL"
M1005	X-3165-593-2	o	MOTOR ASSY, CAM "LOADING"
PM1001	1-454-531-11	s	SOLENOID, PLUNGER (with harness) "BRAKE"
PM1002	1-454-434-21	s	SOLENOID, PLUNGER (with harness) "PINCH"
PM1003	1-454-334-71	s	SOLENOID, PLUNGER (with harness) "T-BRAKE"
S1001	1-571-099-11	s	SWITCH, MICRO "CASSETTE DOWN"
S1002	1-570-771-11	s	SWITCH, MICRO "MISS REC"
S1003	1-571-099-11	s	SWITCH, MICRO "VHS CASSETTE"
S1004	⚠1-570-052-11	s	SWITCH, PUSH (AC POWER) "POWER"
S1005	⚠1-570-173-11	s	SWITCH, SLIDE (VOLTAGE SELECT) "VOLTAGE SELECTOR"
T901	⚠1-450-912-11	s	TRANSFORMER, POWER (with harness)

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

HARNESS'S CHILD PARTS

HARNESS(A-ERASE):CN302/SS-49A board to CN617/AH-28 board

Ref. No. or Q'ty	Part No.	SP	Description
CN302F	1-569-196-11	o	HOUSING, 3P
1pc	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN617F	1-569-195-41	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(AC INLET): to CN1/AC-136 board

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-535-316-11	o	TERMINAL, GROUND (M4)
CN1F	⚠1-562-211-11	o	HOUSING, VH 3P
2pcs	⚠1-562-210-11	o	CONTACT, FEMALE, AWG18-22
CN1001	⚠1-580-375-11	s	INLET, AC 3P, MALE
1pc	4-605-946-01	o	COVER, AC INLET

HARNESS(AU CONT):CN142/SS-49A board to CN311/AU-161A board

Unstock Part

HARNESS(AU HEAD):CN315,316/SS-49A board to CN616/AH-28 board

Ref. No. or Q'ty	Part No.	SP	Description
CN315F	1-569-196-21	o	HOUSING, 3P
1pcs	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN316F	1-569-196-41	o	HOUSING, 3P
1pcs	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN616F	1-569-197-11	o	HOUSING, 4P
4pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(AU IN):CN309/AU-161A board to CN501/CP-183 board

Ref. No. or Q'ty	Part No.	SP	Description
CN309F	1-569-197-41	o	HOUSING, 4P
4pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN501F	1-569-197-41	o	HOUSING, 4P
4pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(AU MIC):CN2/CN-633 board to CN314/AU-161A board

Ref. No. or Q'ty	Part No.	SP	Description
CN314F	1-569-197-11	o	HOUSING, 4P
1pc	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
3pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN2F	1-569-197-11	o	HOUSING, 4P
1pc	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
3pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
FB1002	1-543-793-11	s	FILTER, CLAMP (FERRITE CORE)

HARNESS(AU MON):CN154/KY-219 board to CN307/AU-161A board

Unstock Part

(HARNESS'S CHILD PARTS)

HARNESS(AU OUT):CN310/AU-161A board to CN502/CP-183 board

Ref. No. or Q'ty	Part No.	SP	Description
CN310F	1-569-202-21	o	HOUSING, 9P
9pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN502F	1-569-202-21	o	HOUSING, 9P
9pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(AU REG):CN140/SS-49A board to CN313/AU-161A board

Unstock Part

HARNESS(CAPSTAN):CN632/DR-176 board to CN603/CAPSTAN motor

Ref. No. or Q'ty	Part No.	SP	Description
CN632F	1-569-202-11	o	HOUSING, 9P
8pcs	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
1pc	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN603F	1-569-202-11	o	HOUSING, 9P
8pcs	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
1pc	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(CASSECON):CN105/SS-49A board to CN001/CM-14 board

Unstock Part

HARNESS(CASSETTE DOWN): to CN652/HN-160 board

Ref. No. or Q'ty	Part No.	SP	Description
CN652F	1-569-195-21	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
S1001	1-571-099-11	s	SWITCH, MICRO

HARNESS(CN-KY):CN152/KY-219 board to CN1/CN-633 board

Unstock Part

HARNESS(CR-SS):CN133/SS-49A board to CN213/CR-39 board

Unstock Part

HARNESS(CTL):CN107/SS-49A board to CN618/AH-28 board

Ref. No. or Q'ty	Part No.	SP	Description
CN107F	1-569-196-11	o	HOUSING, 3P
1pc	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN618F	1-569-195-11	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(DRUM):CN634/DR-167 board to CN604/DRUM motor

Ref. No. or Q'ty	Part No.	SP	Description
CN634	1-562-748-11	o	HOUSING, BOARD-IN 15P
15pcs	1-564-832-11	o	CONTACT, MALE
CN604F	1-580-938-11	o	HOUSING, 15P
15pcs	1-565-740-11	o	CONTACT, FEMALE

NOTES: *a; S/N 10001 thru 10030　*c; S/N 10001 thru 10280　*e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130　*d; S/N 10001 thru 10480

(HARNESS'S CHILD PARTS)

Ref. No. or Q'ty	Part No.	SP	Description

HARNESS(F ERASE):CN303/SS-49A board to CN619/FULL ERASE HEAD

CN303F	1-569-196-31	o	HOUSING, 3P
1pc	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN619F	1-569-195-11	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(KY):CN111/SS-49A board to CN151/KY-219 board

CN111F	1-569-202-31	o	HOUSING, 9P
9pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN151F	1-569-202-31	o	HOUSING, 9P
9pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(LD MOTOR):CN106/SS-49A board to CN620/LD-35 board

CN106	1-562-735-11	o	HOUSING, BOARD-IN 2P
2pcs	1-564-831-11	o	CONTACT, MALE
CN620F	1-569-195-11	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(LED):CN654/HN-160 board to LE-80 board

CN654F	1-569-195-41	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(LS SENSOR):CN635/DR-167 board to CN610/SE-151 board

CN635	1-562-735-11	o	HOUSING, BOARD-IN 2P
2pcs	1-564-832-11	o	CONTACT, MALE
CN610F	1-569-195-11	o	HOUSING, 2P
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(MISS REC): to CN659/HN-160 board

CN659F	1-569-195-21	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
S1002	1-570-771-11	s	SWITCH, MICRO

HARNESS(OPTION1):CN114/SS-49A board to CN551/OPTION board

CN114F	1-569-204-11	o	HOUSING, 11P
11pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN551F	1-569-204-11	o	HOUSING, 11P
11pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(OPTION2):CN110/SS-49A board to CN552/OPTION board

CN110F	1-569-205-31	o	HOUSING, 12P
12pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN552F	1-569-205-11	o	HOUSING, 12P
12pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

(HARNESS'S CHILD PARTS)

Ref. No. or Q'ty	Part No.	SP	Description

HARNESS(POWER SW):CN2/AC-136 board to CN3/AC-136 board

CN2F	⚠1-562-285-11	o	HOUSING, VH 4P
2pcs	⚠1-562-210-11	o	CONTACT, FEMALE, AWG18-22
CN3F	⚠1-562-211-11	o	HOUSING, VH 3P
2pcs	⚠1-562-210-11	o	CONTACT, FEMALE, AWG18-22
S1004	⚠1-570-052-11	s	SWITCH, PUSH (AC POWER)
1pc	3-177-256-01	o	COVER, SWITCH

HARNESS(REMAIN):CN116/SS-49A board to CN503/CP-183 board

CN116F	1-569-206-41	o	HOUSING, 13P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN503F	1-569-201-11	o	HOUSING, 8P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(RP AFM):CN308/AU-161A board to CN805/RP-62A board

CN308F	1-569-199-31	o	HOUSING, 6P
1pc	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN805F	1-569-199-31	o	HOUSING, 6P
1pc	1-569-191-11	o	CONTACT, FEMALE, AWG22-26
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(RP CONT):CN132/RP-62A board to CN803/SS-49A board

CN132F	1-569-199-41	o	HOUSING, 6P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN803F	1-569-199-41	o	HOUSING, 6P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(RP FSC):CN206/VO-37A board to CN806/RP-62A board

CN206	1-562-738-11	o	HOUSING, BOARD-IN 5P
5pcs	1-564-831-11	o	CONTACT, MALE
CN806F	1-569-198-11	o	HOUSING, 5P
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(RP PB):CN202/VO-37A board to CN802/RP-62A board

CN202	1-569-740-11	o	HOUSING, BOARD-IN 7P
7pcs	1-564-831-11	o	CONTACT, MALE
CN802F	1-569-200-11	o	HOUSING, 7P
7pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(RP REC):CN207/VO-37A board to CN807/RP-62A board

CN207	1-569-739-11	o	HOUSING, BOARD-IN 6P
6pcs	1-564-831-11	o	CONTACT, MALE
CN807F	1-569-199-11	o	HOUSING, 6P
6pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

NOTES: *a; S/N 10001 thru 10030 *c; S/N 10001 thru 10280 *e; S/N 10131 thru 10280
*b; S/N 10001 thru 10130 *d; S/N 10001 thru 10480

(HARNESS'S CHILD PARTS)

HARNESS(RP-VO):CN208/VO-37A board to CN808/RP-62A board

Ref. No. or Q'ty	Part No.	SP	Description
CN208	1-562-736-11	o	HOUSING, BOARD-IN 3P
3pcs	1-564-831-11	o	CONTACT, MALE
CN808F	1-569-196-11	o	HOUSING, 3P
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(S-DR1):CN1/DR-153(b) board to CN1/S-REEL motor

Unstock Part

HARNESS(S-DR2):CN2/DR-153(b) board to CN2/S-REEL motor

Unstock Part

HARNESS(S-REEL):CN123/SS-49A board to CN3/DR-153(b) board

Unstock Part

HARNESS(S-TEN):CN657/HN-160 board to LE-86 & SE-151 boards

Ref. No. or Q'ty	Part No.	SP	Description
CN316F	1-569-196-41	o	HOUSING, 3P
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(SS REG):CN100/SS-49A board to CN902/DC-53A board

Ref. No. or Q'ty	Part No.	SP	Description
CN100F	1-561-992-11	o	HOUSING, 11P
11pcs	1-560-901-21	o	CONTACT, FEMALE
CN902F	1-561-992-11	o	HOUSING, 11P
11pcs	1-560-901-21	o	CONTACT, FEMALE

HARNESS(SW-1):CN102/SS-49A board to CN658/HN-160 board

Unstock Part

HARNESS(SW-2):CN103/SS-49A board to CN655/HN-160 board

Unstock Part

HARNESS(T-BRAKE C):DR-167 board to CN1/DUS-544 board

Ref. No. or Q'ty	Part No.	SP	Description
CN1F	1-569-195-11	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(T-DR1):CN1/DR-153(a) board to CN1/T-REEL motor

Unstock Part

HARNESS(T-DR2):CN2/DR-153(a) board to CN2/T-REEL motor

Unstock Part

HARNESS(T-REEL):CN152/KY-219 board to CN1/CN-633 board

Unstock Part

(HARNESS'S CHILD PARTS)

HARNESS(T-TOP):CN651/HN-160 board to SE-152 board

Ref. No. or Q'ty	Part No.	SP	Description
CN651F	1-569-195-11	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(TR):CN117/SS-49A board to CN157/KY-219 board

Ref. No. or Q'ty	Part No.	SP	Description
CN117F	1-569-197-21	o	HOUSING, 4P
4pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN157F	1-569-197-21	o	HOUSING, 4P
4pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(VHS CASSETTE): to CN653/HN-160 board

Ref. No. or Q'ty	Part No.	SP	Description
CN653F	1-569-195-31	o	HOUSING, 2P
2pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
S1003	1-571-099-11	s	SWITCH, MICRO

HARNESS(VM VO-1):CN221/VO-37A board to CN701/VM-12P board

Ref. No. or Q'ty	Part No.	SP	Description
CN221F	1-569-202-11	o	HOUSING, 9P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN701F	1-569-202-41	o	HOUSING, 9P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
FB1001	1-543-793-11	s	FILTER, CLAMP (FERRITE CORE)

HARNESS(VM VO-2):CN222/VO-37A board to CN702/VM-12P board

Ref. No. or Q'ty	Part No.	SP	Description
CN222F	1-569-198-41	o	HOUSING, 5P
4pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN702F	1-569-198-41	o	HOUSING, 5P
4pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(VO CP1):CN231/VO-37A board to CN504/CP-183 board

Ref. No. or Q'ty	Part No.	SP	Description
CN231F	1-569-198-41	o	HOUSING, 5P
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN504F	1-569-198-41	o	HOUSING, 5P
5pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(VO CP2):CN232/VO-37A board to CN505/CP-183 board

Ref. No. or Q'ty	Part No.	SP	Description
CN232F	1-569-201-21	o	HOUSING, 8P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30
CN505F	1-569-201-21	o	HOUSING, 8P
8pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

HARNESS(VO CONT):CN203/VO-37A board to CN131/SS-49A board

Unstock Part

HARNESS(VO REG):CN201/VO-37A board to CN130/SS-49A board

Unstock Part

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280

(HARNESS'S CHILD PARTS)

HARNESS(VOLTAGE SELECTER): to CN5/AC-136 board

Ref. No. or Q'ty	Part No.	SP	Description
CN5F	⚠1-562-286-11	o	HOUSING, VH 5P
3pcs	⚠1-562-210-11	o	CONTACT, FEMALE, AWG18-22
S1005	⚠1-570-173-11	s	SWITCH, SLIDE (VOLTAGE SELECT)
1pc	3-175-981-01	o	COVER, SWITCH

BRAKE SOLENOID: to CN656/HN-160 board

Ref. No. or Q'ty	Part No.	SP	Description
CN656F	1-569-196-11	o	HOUSING, 3P
3pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

DEW CONDENSATION SENSOR: to CN108/SS-49A board

Ref. No. or Q'ty	Part No.	SP	Description
CN108F	1-562-147-11	o	HOUSING, 2P
2pcs	1-564-026-00	o	CONTACT, FEMALE, AWG26-30

PINCH SOLENOID: to CN118/SS-49A board

Ref. No. or Q'ty	Part No.	SP	Description
CN118F	1-569-196-31	o	HOUSING, 3P
3pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

POWER TRANSFORMER:CN4/AC-136 board to CN101/DC-53A board

Ref. No. or Q'ty	Part No.	SP	Description
CN4F	⚠1-562-286-11	o	HOUSING, VH 5P
3pcs	⚠1-562-210-11	o	CONTACT, FEMALE, AWG18-22
CN101F	⚠1-562-285-11	o	HOUSING, VH 4P
4pcs	⚠1-562-210-11	o	CONTACT, FEMALE, AWG18-22

T-BRAKE SOLENOID: to CN633/DR-167 board

Ref. No. or Q'ty	Part No.	SP	Description
CN633F	1-569-196-11	o	HOUSING, 3P
3pcs	1-569-193-11	o	CONTACT, FEMALE, AWG24-30

14-4. PACKING MATERIALS AND ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	3-177-197-01	o	CUSHION (UPPER)
1pc	3-177-198-01	o	CUSHION (LOWER)
1pc	3-177-399-01	o	INDIVIDUAL CARTON
1pc	3-704-295-01	o	BAG, PROTECTION (STANDARD)
1pc	⚠3-754-503-13	s	MANUAL, INSTRUCTION

14-5. OPTIONAL FIXTURES LIST

Part No.	SP	Description
H-7099-035-H	o	TORQUE GAUGE ADAPTOR
H-7099-039-H	o	TORQUE GAUGE
H-7099-052-H	o	ALIGNMENT TAPE, JVC-MH-2(PAL)
J-6080-811-A	o	GUIDE HEIGHT ADJ. DRIVER
or		
J-6082-044-A	o	GUIDE HEIGHT ADJ. DRIVER
J-6080-840-A	o	SMALL MIRROR
J-6090-014-A	o	MOLYCOTE GREASE EM-30LG
or		
4-918-645-01	o	MOLYCOTE GREASE EM-30L
J-6380-040-A	o	RG REFERENCE PIN (1)
J-6380-050-A	o	RG REFERENCE PIN (2)
J-6380-080-A	o	REFERENCE PLATE
J-6380-090-A	o	REEL TABLE HEIGHT ADJ. TOOL
J-6380-550-A	o	MASTER BLOCK
J-6380-700-A	o	MASTER BLOCK
J-6380-710-A	o	X VALUE ADJUSTMENT TOOL
J-6381-370-A	o	RP EXTENSION TOOL
J-6381-380-A	o	S-BNC VIDEO CABLE
J-6381-910-A	o	Y/C DELAY ADJUSTMENT TOOL
2-034-697-00	o	CLEANING CLOTH
7-700-736-05	o	L-SHAPED HEXAGONAL WRENCH(1.5mm)
7-700-736-06	o	L-SHAPED HEXAGONAL WRENCH(0.89mm)
7-700-751-02	o	BOX DRIVER(5.5mm)
8-192-602-48	o	ALIGNMENT TAPE, KRV-4821PSA
8-192-603-96	o	ALIGNMENT TAPE, KRV-39PF
- Pending -	o	ALIGNMENT TAPE, KRV-45HPS(S-VHS)
- Pending -	o	ALIGNMENT TAPE, KRV-45PS(VHS)
8-896-024-94	o	BLANK TAPE, GR-120KG(VHS)
9-911-053-00	o	THICKNESS GAUGE
9-919-573-01	o	CLEANING FLUID

COMMERCIALLY SOLD
TENTELOMETER, T2-H7-UMC
HEAD DEGAUSSER
S-VHS BLANK TAPE

NOTES: *a; S/N 10001 thru 10030
*b; S/N 10001 thru 10130
*c; S/N 10001 thru 10280
*d; S/N 10001 thru 10480
*e; S/N 10131 thru 10280